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ABSTRACT

Presented in five parts on research, services, training, drug abuse, and alcohol abuse are 31 reports of mental health studies and programs supported by the U.S. and other countries. Explained in the introduction are reasons the National Institute of Mental Health (NIMH) has supported international collaboration. The following are among subjects of 19 research reports given in Part 1: NIMH assessment of schizophrenia research in the USRR (1972); international pilot study of schizophrenia; six-country study of effects of modernization; Hawaiian psychopathology and normality; megavitamin, tranquilizer and drug studies for the aged in Canada; English autistic children; genetic/environmental influences on criminality in Denmark; psychoses in Croatia (Yugoslavia); suicide (Scandinavia, Los Angeles, and Vienna); Swedish laboratory methods; child rearing in the U.S. and Japan; and Micronesian thinking patterns. Focused on among four reports on services (Part 2) are an overview, NIMH observation of USSR services (1967), and family role in children's hospital care (U.S.). Training in Part 3 is examined in three reports on foreign researchers in U.S. laboratories, foreign work-study assignments, and anthropology fellowships. Offered in Part 4 are four drug abuse reports on international cannabis research, international programs, narcotic addiction treatment in Iran, and a NATO drug rehabilitation project. The one report in Part 5 covers international studies on alcohol abuse and alcoholism. Directions for future collaboration are examined. (MC)

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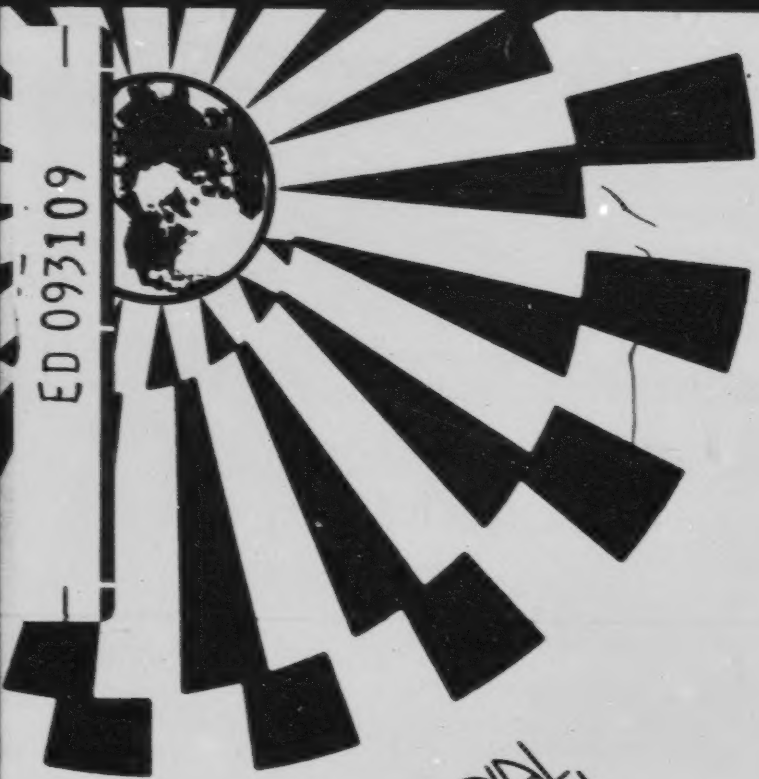

INTERNATIONAL COLLABORATION IN MENTAL HEALTH

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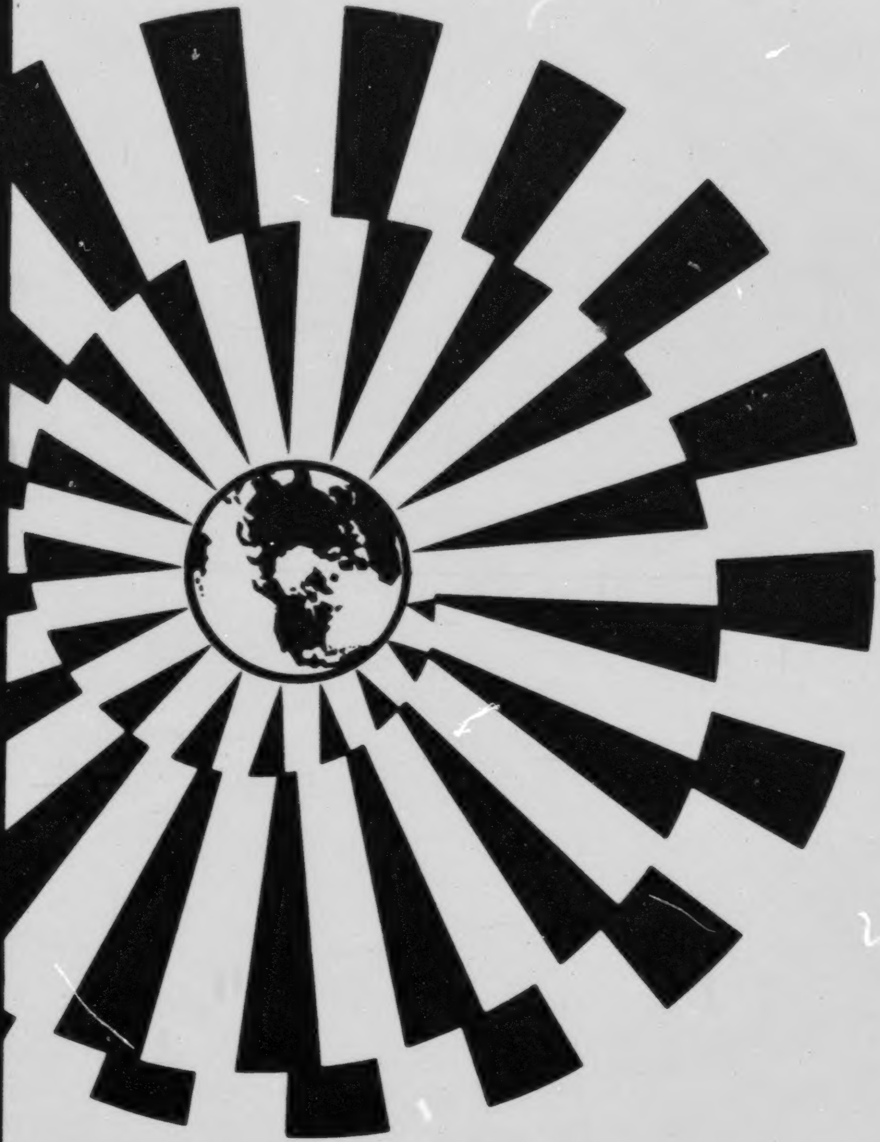

INTRODUCTION

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WHY INTERNATIONAL COLLABORATION?

BERTRAM S. BROWN, M.D.
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The development of knowledge about mental illness and mental health is a history marked by collaboration and mutual learning between professionals in different countries. The mental health disciplines of psychiatry, psychology, psychiatric social work, and psychiatric nursing each emerged not in any one country, but out of a flux of ideas among several countries. To be considered truly educated, mental health professionals have always been expected to keep abreast of the thinking of foreign colleagues, and those who do not are often scorned as provincial.

Mental disorders, of course, are not confined to specific countries or continents. Virtually all mental diseases are found in all countries, though the incidences may vary considerably. And problems like drug abuse, which in recent years has spread throughout youth cultures all over the world, illustrate how rapidly the problems of one country may become the problems of another.

The scientific fruits of freely flowing ideas in the mental health field have been many. Virtually every major therapeutic advance in the field has come from ideas which began in one country and then were modified in another. Tranquilizing drugs, electroshock, therapeutic communities, psychoanalysis, and new forms of psychotherapy are all the product of ideas which crossed many boundaries and, in the process, became refined and polished. Advances in research on mental disorders have shown a similar blindness for geographical boundaries and freely migrated from laboratory to laboratory. Changes in governments and national ideologies have sometimes slowed the flow or, as in the recent example of China, reduced it to a trickle, but such changes are merely temporary. In the long run the worldwide community of those interested in mental health continues to communicate and exchange ideas, united by the common interest of diseases which must be controlled and patients who must be treated.

In view of this, it is not surprising that the National Institute of Mental Health has, since its earliest years, sought to exchange ideas with mental health professionals from other countries. During the Institute's first 10 years such efforts consisted of utilizing the skills of visiting scientists in its laboratories (by 1955 there were already 15 such scientists in residence); sending American scientists on research fellowships abroad for advanced study; supporting international conferences for the exchange of research findings; and participating in Expert Committees of the World Health Organization (Dr. Morton Kramer has been the earliest and most frequent participant in these).

In 1957 the first research grant was awarded to a foreign grantee for a study of physiological reactions to stress, and NIMH had embarked upon an important new direction. Under the farsighted leadership of Philip Sapir and Louis Wienckowski, the Extramural Research Program expanded its foreign grants to over $1 million a year. Even then, however, these grants comprised well under 2 percent of the total research grant budget, and Federal restrictions on the flow of dollars abroad has kept the figure well below this in recent years. In 1959 the Director of the United States Addiction Research Center in Lexington, Kentucky took advantage of the first work-study assignment. By 1960, then, NIMH had underway a full-scale international program.

The scope of NIMH's international collaboration in the mental health field will become apparent in the examples described in the following chapters. It is useful at this point, however, to briefly summarize the programs which comprise the international exchange. Although collaboration has necessarily been curtailed over the past several years as a result of the Nation's unfavorable balance of payments, a small but significant portion of the Institute's research activities has been invested in a variety of foreign undertakings. Included in such extranational undertakings are research grants to investigators sponsored by foreign institutions; research contracts to foreign investigators; research grants to U.S. investigators, sponsored by domestic institutions but which include the utilization of foreign resources; fellowships for U.S. nationals to undertake advanced training abroad; direct (intramural) staff research carried out abroad on foreign work/study assignments; collaborative research projects funded by U.S.-owned foreign currencies (Public Law 480 projects) in such countries as Israel, India, Poland, Yugoslavia; grants in support of international working conferences or symposia; and reception at the NIMH of foreign scientists under the Visiting and International Postdoctoral Programs. Some of these are described below. Institute staff members also collaborate with, and serve as expert advisers to, the World Health Organization and other international and intergovernmental health organizations.

In the field of mental health, scientific communication is of unique importance. The National Clearinghouse for Mental Health Information, which serves as the central scientific communications resource of the NIMH, is designed to meet a growing demand for information and scientific exchange. NCMHI staff annually scan approximately 1,200 journals, published in at least 38 different countries, representing each of the continents, and in 20 different languages ranging from Serbo-Croatian to Japanese. This provides a truly international coverage of mental health literature.

Research Grants to Foreign Institutions and International Organizations

Since 1957, NIMH has supported research projects abroad. These projects are funded and administered by the Institute as part of the regular research program, the primary difference being that foreign awards provide access to research resources, skills, or opportunities not available domestically.

Research abroad is for the most part limited to the research project grant. This is awarded to an institution in the name of a principal investigator for a discrete project representing an investigator's interests and competence. They are awarded to universities, medical schools, hospitals, and other nonprofit institutions sponsoring research in mental health. The same basic method is used for selection of approved grants, whether domestic or foreign. Study sections evaluate technical merit of applications: the qualifications of the investigator, characteristics of the research environment, and significance of problems to be studied. Study section recommendations are reviewed by the National Advisory Mental Health Council, and applications they approve are recommended to the Surgeon General for funding.

To insure greater selectivity and scientific excellence in the award of grants to foreign investigators, however, certain additional criteria must be met to be eligible for support. Among these are the following: (1) the research proposed (a) is outstanding or original in concept, or (b) would utilize talents, skills, materials, or other resources not likely to be available in the United States; and (2) the proposal is of such nature that the results are likely to advance significantly the status of the health sciences in both the country of the applicant and the United States.

International Conferences

The bulk of the Institute's international activities, of course, takes the form of support for specific research studies, carried out by foreign or U.S. investigators, or collaborative projects. Recognizing that communication is an essential part of research, NIMH also makes available limited funds for the support of selected international conferences which are judged likely to contribute significantly to the furtherance of mental health research. International meetings or symposia can furnish an especially useful channel of communications across national boundaries, providing the personal contact between U.S. and foreign investigators which can stimulate new approaches, offer exposure to other methodologies or instrumentation, and assist in developing collaborative research.

Bilateral Agreements for Cooperation in Biomedical Research

These bilateral agreements for cooperation in science and technology generally develop as a result of a mutual desire to cooperate in scientific and technological research. Since these agreements are very general in nature, the Department of State usually designates one agency of the United States—for example, the Smithsonian Institution in one instance and the National Science Foundation in another—to act as "executive agency" in coordinating implementation of these accords. If a cooperative research project is developed by a participating agency such as NIMH under one of these general agreements, the project application is submitted to the U.S. executive agency and its foreign counterpart agency for approval. Expenditures in the cooperating country are paid for by that Government and those in the United States by the American Government. Under the aegis of these agreements, a number of cooperative projects have been proposed and exchanges have taken place. The NIMH scientists have participated in the past and are now participating in bilateral projects with the following countries:

Australia: A cooperative effort between the Australian Commonwealth Department of Health and the U.S. NIMH which would provide a continuing exchange of information on research, education, and treatment in the fields of drug abuse and alcoholism.

Argentina: Narcotic addiction and drug abuse.

Italy: NIMH is supporting a broad program of scientific cooperation. It includes a basic research project using mass spectrometry for quantitative analysis of neurochemical transmitters in nerve tissue developed jointly by a scientist of the Institute of Pharmacology and Pharmacognosy of the University of Milan and a scientist in the NIMH Division of Special Mental Health Research. A second project supported by NIMH for inclusion in the United States-Italy Cooperative Science Program will be carried out jointly by the Educational Testing Service, Princeton, New Jersey and the University of Rome. This will involve studies in laterality in brain-damaged as well as in normal children and adults.

Special Foreign Currency (SFC) Program

The SFC Program utilizes U.S.-owned foreign currencies derived from the sale in foreign markets of surplus agricultural commodities to support scientific activities overseas. Projects must be of a collaborative nature, and only those subject areas which are of interest to the United States as well as to the foreign country are supported under this program. Projects are designed to provide a U.S. scientist, who serves as sponsor or project officer, and a scientist counterpart in a foreign laboratory, who serves as principal investigator. Such a scientist-to-scientist relationship assures that academic, intellectual, and scientific benefits accrue to both countries. Funds of the program are intended to support only additive research. They are not used to substitute for the support each country would normally give to its research effort. Since SFC collaborative research projects actually represent official agreements between the U.S. Government and foreign governments, no project will be supported contrary to the wishes of the host country's organization responsible for the overall planning and coordination of research. Currently, the NIMH has active projects in India, Israel, Poland, and Yugoslavia which cover a wide range of the Institute's research interests.

NIMH Postdoctoral and Special Research Fellowships

NIMH awards fellowships to scientists for support of advanced research training in subjects related to mental health. Fellowships for advanced study abroad are awarded to a few highly selected U.S. research scientists to enable them to take advantage of unusual research resources or conditions abroad or to undertake collaborative work with highly competent foreign scientists. An award is made when the experience in the foreign laboratory will enhance substantially the future productive capacity of the fellow. In addition to meeting the regular requirements applying to study at domestic institutions, U.S. nationals applying for support at foreign institutions must furnish evidence that the equivalent training cannot be obtained at domestic institutions. Applicants must have arranged a carefully planned and well-defined training program with a sponsor. This program will terminate in 1973.

International Postdoctoral Research Fellowship Program

NIMH has awarded in the past a limited number of international postdoctoral research fellowships to promising young foreign scientists for research training at major educational and research institutions in the United States. The fellowships are designed to assist these scientists in acquiring specialized training in disciplinary areas of interest to NIMH for careers in research. Their primary objective is to serve two important domestic purposes: (1) to facilitate an interchange of knowledge between American and foreign scientists, both during and after training; and (2) to encourage and assist foreign investigators to engage in research on problems of importance to the health of the American people. Future collaborative research is often initiated by joint research efforts during the fellowship period. The Public Health Service has formally recognized nominating committees in participating countries. These committees have accepted the responsibilities of disseminating information concerning these fellowships, designating nominated candidates, and certifying the applicants' fulfillment of the eligibility requirements.

Visiting Program

The Visiting Program was established in the National Institutes of Health in 1950 to strengthen the mutually productive relationships of scientific centers throughout the world and NIH, and to increase the utility of facilities and environment of NIH as a national research resource. NIMH has participated in this program since its initiation. Highly competent foreign scientists, designated as distinguished scientists, visiting scientists, visiting associates, or visiting fellows, participate in the program. These appointments provide to the visiting scientist special facilities, resources, and consultation that may not have been available in his own country. At the same time they provide to the United States an additional source of new techniques and special talents and procedures. Visiting Program appointments are not competitive but are initiated by heads of laboratories or programs where scientists with specific needed skills, knowledge, or experience are not available through normal recruitment channels.

International Centers for Medical Research and Training (ICMRT)

The ICMRT program was established in 1960 by the National Institutes of Health by authority of the International Health Research Act of 1960 to provide for international cooperation in health research, research training, and research planning to promote health sciences in the United States, and thereby the health of the American people. These objectives were to be implemented by expanding collaborative research and research training between U.S. universities and selected foreign institutions and investigators. Each ICMRT, of which there are currently four, is a discrete research organization sponsored by and established in a U.S. university professional school (medical and public health). When an ICMRT is awarded to the domestic university, the university negotiates with a foreign institution of its choice to establish an affiliate Center which will have the necessary research facilities and scientific and technical competence to support the research agreed upon. These collaborative research and research training centers overseas afford to the U.S. investigators environmental, ethnic, and medical conditions of scientific interest which are unavailable in the United States.

NIMH is not currently participating, but in the early years of the program when the Institute was a component of NIH, the Institute contributed annually to the centrally administered NIH program of ICMRT. Although the major portions of these research training programs were oriented to basic public health disciplines and to such fields as parasitology, nutrition, epidemiology, and preventive medicine, during 1961 some growth occurred in the behavioral science content of several of the programs. At Tulane University, for example, which operates conjointly under the ICMRT grant with the Universidad del Valle at Cali, Colombia, the Department of Sociology and Anthropology collaborates in the overall program. In the collaborative project between The Johns Hopkins University and its two affiliates in India (the Calcutta School of Tropical Medicine and the All-India Institute of Hygiene), ecology and the behavioral sciences are one of the four general areas of the research program. A sociologist had also been added at that time to the staff of the project operated at Kuala Lumpur under the University of California's ICMRT grant.

The legislative authority for domestic health agencies to become involved in international health endeavors dates back to 1930. Early official recognition of the usefulness of foreign research resources and talents in throwing light on our domestic medical problems was contained in the 1930 Act of Congress which (in establishing the National Institute of Health) authorized fellowship arrangements for sending American scientists overseas for training and to carry on investigations in foreign localities or in collaboration with foreign scientists.

Explicit legislative recognition of the importance of international medical research activities to the progress of the health sciences in the United States came in the International Health Research Act of 1960 (Public Law 86-610). This Act authorized the Surgeon General of the Public Health Service to carry on "cooperative endeavors with other countries in health research and research training." In the same Act, Congress recognized a permanent U.S. interest in international cooperation to further the "international status of the health sciences," an interest which had previously been manifested mainly through the various foreign aid programs. The Act authorized the President to carry out "cooperative enterprises in health research, research planning, and research training."

As will become apparent in this book, it is relatively easy to identify the direct gains to the United States from international collaboration in mental health. These gains satisfy the intent of the legislation authorizing these activities. What will not be as readily apparent but of equal importance are the many other benefits which accrue from contact and collaboration between mental health professionals in different countries. In particular, the collaboration between professionals leads directly to greater understanding and friendship between countries. Black and white, communist and capitalist, Hindu and Moslem, Spanish-speaker and Swahili-speaker, all sit down at the same research bench and in the same conference room to sort out the complexities of schizophrenia, severe depression, and all the other abnormalities of the human brain. The intellectual ties that bind them are strong and the effect of such ties should not be underestimated.

Another immeasurable side effect of such collaboration is an enrichment of clinical practice in participating countries. Styles of treatment become fashionable in different countries at different periods and perpetuate themselves as traditions. Finding that professionals in other countries treat a mental disease quite differently can be a revelation, and often leads to a needed reevaluation of therapies. Such discoveries are inevitable concomitants of mental health clinicians from different countries spending time with each other.

Examples of indirect benefits observed at NIMH are many, but only a few will be cited. One example of increasing friendship between nations is NIMH staff participation in the United States-Mexico Border Public Health Association. This private organization, predominantly composed of health officials concerned with problems on the border between the two countries, has recently included drug abuse and juvenile delinquency among its concerns. NIMH staff have participated in these discussions and given technical assistance in pursuing these projects.

Another example is contributions of NIMH staff to expert committees of the World Health Organization. Such committees are convened periodically to consider specific problems and, after due deliberation, make recommendations. These in turn are published and become standards for assessing mental health research, services, and training around the world. Dr. Robert Felix, a past Director of NIMH, contributed to expert committees on legislation affecting psychiatric treatment, social psychiatry, and community attitudes, and mental health program development. Other staff have also participated on these expert committees, including Dr. Morton Kramer on mental health statistics and drug studies and Dr. William Pollin on biological research in schizophrenia. In addition to participation on expert committees, NIMH staff have worked on joint projects with WHO staff both at the main headquarters in Geneva and at the six regional offices.

A current example of NIMH staff contributions to mental health programs elsewhere is the Nicaragua mental health relief program. Shortly after the devastating earthquake leveled Managua late in 1972, NIMH was contacted by Andromeda, a private, nonprofit organization providing mental health services to the Spanish-speaking of the Nation's capital. Many Spanish-speaking mental health professionals, it was said, were prepared to go to Nicaragua to help if arrangements could be made. NIMH assumed the role of coordinator with Andromeda, and immediately began making arrangements through the Government of Nicaragua, the Pan American Health Organization, private relief fundraisers in Massachusetts and Wisconsin, and the branches of the U.S. Government which were already involved in assistance to Nicaragua.

The Nicaraguan Government provided air transportation for the volunteers through Lanica, the Nicaraguan airline. Pharmaceutical companies contributed drugs. But, most importantly, the response from Spanish-speaking professionals to contribute their time was strong and enthusiastic, usually with the support of their employing State hospital, mental health center, or university. Acting in the role of coordinator and expeditor, NIMH was able to make the relief effort a reality so that three teams of six mental health professionals each went to Nicaragua for a month at a time. There they were matched by counterpart Nicaraguan mental health professionals, under the direction of the Ministry of Health. Although there is no question that the United States, as a result of this experience in Nicaragua, increased its expertise to deal with the mental health consequences of disasters like the Rapid City, South Dakota, and Wilkes-Barre, Pennsylvania, floods, it is apparent that Nicaragua also benefitted from the professional services and that friendship between the countries was thereby enriched.

It should not be thought, however, that this long and productive history of international collaboration has been without problems. On the contrary the problems have been very real and omnipresent. Probably foremost among them has been the image of the program. International programs in government agencies often acquire a reputation for including trips that are of questionable value. Such a reputation is sometimes deserved, for such trips have been known to occur even in the best of international programs. Such abuses are comparatively rare, however, in well-run programs. More often the reputation is an inevitable spillover from the fact that going to Copenhagen or Paris or London to consult on a research project is perceived by others as something highly desirable and therefore of questionable value by definition. It does not matter what the consultant does, or whether he ever sees the light of day (to say nothing of a cathedral or gallery) outside the foreign laboratory. If he travels overseas, then it must be, by definition, a pleasure trip.

This ethos of minimal credibility occurs in all international programs to one degree or another. It will probably always be present because of the unchangeable truth that going to Copenhagen or Paris or London *is* more enjoyable for many people than going to most U.S. cities. Realizing the inevitability of this ethos does not permit us to ignore it, however. On the contrary this ethos is a "given" which demands closer controls, closer accountability, and more openness for international programs than for other parts of the government agency. Trips to other countries, necessary to accomplish the goals of any international program, must be done in such a way that it should be comparatively obvious why the person went and what was accomplished.

Another problem which has been recurrent is restrictions on ceilings for foreign research expenditures. Such ceilings, necessitated by an adverse balance of payments for the U.S. Treasury, has had the effect of discouraging the development of research projects in other countries. To compete for the scarce funds under the ceiling, a project has had to be of outstanding merit; utilize talents, materials, or unique research situations not available in the U.S.; and be of clear benefit to both the United States and the host country. This is a large order which frightens off many researchers before they even begin.

The obverse of the coin is that, during the few times when larger amounts of money were spent on foreign research, the United States has been accused of scientific imperialism. It is always a danger, when research dollars are sufficient, to buy an inordinate amount of researchers' time in other countries. Such researchers may then be working on problems which the United States believes are of high priority but the host country may not. One way out of this dilemma is to channel more research funds through multinational organizations and thereby encourage research priorities to be set in accordance with the needs of a large number of countries. International collaboration in mental health, if it is to be true collaboration, should always be of benefit to all participating countries.

PART I

RESEARCH

1

THE 1972 NIMH MISSION TO ASSESS SCHIZOPHRENIA RESEARCH IN THE U.S.S.R.

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In 1972 a seven-member NIMH delegation visited the U.S.S.R. for 3 weeks to discuss brain research on schizophrenia with Soviet colleagues. The delegation found that in several areas Soviet researchers were pursuing studies similar to those underway in the United States, and that increased exchange of information and collaboration could be mutually profitable.

In 1972 a seven-man delegation from the National Institute of Mental Health visited the Soviet Union to discuss brain research on schizophrenia with Soviet colleagues. The trip was the outcome of several years of informal contacts between researchers in both countries which, in November 1971, culminated in a specific invitation from Professor A. V. Snezhnevsky, Director of the Institute of Psychiatry in Moscow, to Dr. Bertram S. Brown, Director of NIMH. Dr. Brown was accompanied on the trip by Dr. Irwin J. Kopin, Chief of the Laboratory of Clinical Science; Dr. Morton Kramer, Chief of the Biometry Branch; Dr. Loren R. Mosher, Chief of the Center for Studies of Schizophrenia; Dr. William N. Pollin, Chief of the Twin and Sibling Studies Branch; Dr. Gian C. Salmoiraghi, Director of the Division of Special Mental Health Research; and Dr. E. Fuller Torrey, Special Assistant to the Director for International Activities.

Prior to the visit our knowledge of Soviet research was restricted to presentations at international meetings and to the few Soviet publications which had been translated into English. In both cases there is a tradition in Soviet research of presenting research results in summary form with less detail on methodology than we are accustomed to. Knowledge of Soviet research in the United States was sharply limited to the few researchers who had visited the U.S.S.R. and/or could read sufficient Russian to keep up with developments in Soviet scientific journals. Compared with Western European countries, we knew little about ongoing research in the Soviet Union. By contrast Soviet researchers read American journals and are very well acquainted with our research. For these reasons, it seemed important to make a visit of sufficient duration to allow time to sit down with our Soviet colleagues in their laboratories and discuss specific methodologies and research directions.

The organization of medical research in the U.S.S.R. differs from its organization in this country. For example, the Institute of Psychiatry in Moscow is under the Soviet Academy of Medical Sciences and, as such, reports on all schizophrenia research directly to the Academy. The Academy in turn gets its budget from the national Ministry of Health but has relative autonomy to set its own goals and priorities. The Academy designates different institutions to lead research efforts on specific problems, and the Institute of Psychiatry had been designated to lead research on schizophrenia. The idea is not dissimilar to the "lead agency" concept which has become increasingly utilized in the Federal U.S. Government in recent years.

This does not mean that other institutions in the U.S.S.R. do not do research on schizophrenia, of course, but only that the Institute of Psychiatry in Moscow is the lead institution and, with the Academy of Medical Sciences, tries to coordinate and integrate research efforts on the disease. All 15 Republics which constitute the U.S.S.R. have institutes and/or departments of psychiatry which may also do some research in this field. Other institutes of the Russian Republic (in which Moscow is located) and those in the Georgian Republic are known to be especially active in schizophrenia research. These institutions are directly under the Ministry of Health for their respective Republics and are not directly associated with the Academy of Medical Sciences.

The organization of research in the U.S.S.R. raises many important questions when one compares it to our own organization. Having a lead research institute on a specific problem has the attractiveness of theoretically minimizing overlap, though whether this happens in fact could not be ascertained from our observations. Such coordination would be effective only insofar as open and frequent communication exists between the different research institutions. In the Soviet Union the vast distances appear to make such communication less than optimal. Another precondition for the effectiveness of such a system would be a relative ease of mobility of researchers from one research institute to another so that, for instance, when a schizophrenia researcher accidently finds some data which opens up a potentially productive area of research on epilepsy, he can then negotiate to transfer to the research institution where such research is taking place.

The lead institute idea did appear to produce an impressive degree of integrated research efforts on schizophrenia within the Institute of Psychiatry. The Institute was divided into six basic divisions and the flow of expertise and information among them was impressive. The Department of Clinical Studies charts the clinical course of schizophrenia patients in different age groups and is working toward a systematization of the main forms of the disease. The Department of Epidemiology studies the incidence and prevalence of schizophrenia within the population. The Laboratory of Pathopsychology studies the structure of cognitive processes (thinking, speech, perception) in patients with schizophrenia. The Laboratory of Neurophysiology studies the bioelectrical activity in the brains of schizophrenic patients and also in their relatives. The Laboratory of Pathophysiology studies the biochemistry, immunological reactions, blood cells, and genetic characteristics of the patients. Finally, the Laboratory of Experimental Pathology and Brain Pathomorphology studies anatomical and cytochemical changes in the brain and blood tissues.

One problem raised by the lead institute concept is the support of basic research. If research is goal-directed and targeted toward specific problem areas, as in the U.S.S.R., does this mean that basic research receives less support? In all areas of research it is necessary to have work going on at the basic level; for instance the eventual unraveling of schizophrenia may not take place until there is a better understanding of the biochemistry of brain cells, and this biochemical research is not disease-specific but rather basic to all brain diseases. In the United States we have not yet solved the problem of how to measure basic against applied research, and our observations in the U.S.S.R. indicated that the problem had not been solved there either. Getting the most for each research dollar spent demands that we continue to work toward the most optimal mix of these two types of research.

Another characteristic of Soviet schizophrenia research is that it is clinically-centered. Virtually all the research psychiatrists at the Institute of Psychiatry retained some clinical responsibilities in the adjoining Kashchenko Mental Hospital and spent part of each week seeing patients. The Director of the Institute of Psychiatry, Professor A. V. Snezhnevsky, is highly regarded as a clinician. This continuing emphasis on clinical work as the basis for good research is seen even in the work of the Minister of Health in the U.S.S.R., Dr. Boris V. Petrovsky, who does surgery every week in addition to his administrative responsibilities.

The NIMH delegation was also favorably impressed by the potential for followup studies of schizophrenic patients in the U.S.S.R. Patients are closely followed in outpatient clinics once they leave the hospital and their course can be carefully and accurately charted. The records available on the long-term course are frequently more complete and accurate than those available in this country where less coordination between inpatient and outpatient facilities takes place.

An understanding of schizophrenia research in the U.S.S.R. necessitates an understanding of the system of classification of the disease used there. This system is based upon the clinical work of Professor Snezhnevsky and his colleagues and differs from the classification used in the United States. Before any real research collaboration can occur between the two countries in schizophrenia research, it will be necessary to try to find a common denominator for the two classificatory systems. An American geneticist must know what is meant by a Soviet claim of the occurrence of schizophrenia in "shift-like" forms of the disease and a Soviet researcher must be able to understand the same claim for the "chronic hebephrenic" form of the disease. The NIMH mission began a dialogue on this and has undertaken concrete steps to work toward a common denominator.

In an oversimplified form, Soviet clinicians classify schizophrenic patients more on the basis of the long-term clinical course and less on the basis of the acute symptoms seen in a patient at any given time. Thus the three main divisions are the continuous form with slow but progressive deterioration; the shift-like form with acute episodes but residual symptoms (mild to moderate personality change) between attacks; and the periodical form with acute attacks but no residual symptoms between attacks. All three main forms have many subcategories.

From discussions at the Institute of Psychiatry, as well as trips to Leningrad, Kiev, and Tblisi to visit the major psychiatric research facilities in those cities, members of the NIMH delegation obtained an overview of Soviet research on schizophrenia in many areas. In a brief summary like this, it is not possible to describe all areas explored. Rather a few areas will be selected for discussion to give some idea of the range and major thrusts in the U.S.S.R. compared with what is going on in the United States in this field. It may be seen that an exchange of information between researchers could be useful for both countries.

Biochemical aspects

The pursuit of a biological basis for the development of one of the several clinical forms of schizophrenia identified by the Russian clinicians has been largely directed at attempts to demonstrate an abnormal, toxic factor in the serum of schizophrenic subjects. The methods used to identify the presence of such a plasma factor have varied with the investigator and with time, but the basic premise has remained unchanged.

The techniques used include studies of the effect of serum of schizophrenic patients (or a partially purified derivative) on (1) the activity of neurones (spontaneous activity of neurones in the esophageal ganglion of a snail); (2) the electron microscopic structure of lymphocytes in culture; (3) the membrane permeability of red blood cells to LDH and the effects of such changes in permeability on lactate/pyruvate ratios; (4) the demonstration by complement fixation of antibrain antibodies and definition of the characteristics of such antibodies; and (5) alterations of the myelination of rat embryonal gasserian nodes in culture.

Other studies have been directed towards understanding the metabolism of drugs (e.g., chlorpromazine) used in the treatment of schizophrenia and effects of antipsychotic agents (e.g., lithium) on mitochondrial metabolism (ATP).

Results of some of the studies are provocative, but difficulties in replication have been encountered. Similar studies are in progress in some laboratories in the United States and communication would be valuable to establish more uniform techniques for examination of the serum for abnormal factors. It would also be of interest to attempt to reconcile the protein factor hypothesis with the "amine" hypothesis which is more popular in our country and in Western Europe. The cooperation of two groups of investigators using similar criteria for diagnosis of schizophrenia and similar laboratory methods for identification, separation and testing of serum components would be valuable.

Genetic Aspects

Genetic research in the U.S.S.R. must be seen against the background of the controversies and consequences that surrounded the theories of Lysenko some decades ago. In essence a whole generation of geneticists and genetic research is missing on the Soviet scene. This leads to obvious problems and simultaneously a new high level of interest and support.

The genetics of schizophrenia appears to be an area of particular interest at the Institute of Psychiatry in Moscow. Soviet psychiatry has difficulty in dealing with the possible role of social factors, such as socioeconomic class, in pathogenesis because of views concerning the results of social engineering. There is also skepticism about interpersonal and intrafamilial determinants; such approaches apparently are seen as being contaminated by Freudian dogma. If one thus eliminates or downplays both social and familial factors, there is then a necessarily increased emphasis that must be placed upon genetic explanations.

Three types of work go on at the present time in the Institute that are relevant to genetic studies in schizophrenia. One is a classical type of clinical genetic study. The clinical genetic group has interviewed all relatives of a large consecutive ($N > 300$) series of schizophrenia admissions. The basic design of this type of study is to evaluate the personality and diagnosable psychopathology in different categories of relatives; then to explore the relationship between patient's and relative's diagnoses, and determine to what extent, if any, these are consistent with various genetic formulations. There are methodological problems with this work, and though the results warrant our attention and analysis, they do not appear to offer any especially new promise.

A second approach focuses upon biological rather than clinical psychiatric evaluations of the relatives of schizophrenic patients. Many of the techniques which the Russians have developed in an effort to study various biological parameters of schizophrenia (antibody titers, LDH, immunologic measures, etc.) have been used with family members as well as with index cases of schizophrenia. A third type of work initiated by Dr. Victor Gindilis attempts to test empirically certain theoretical approaches previously propounded by Darlington, Slater, and others. These suggest that even in monozygotic twins there are significant genetic organic differences because of chromosomal/cytoplasmic asymmetry or the interaction of one gene upon others. Dr. Gindilis is attempting to evaluate such theories, and their possible relationship to the pathogenesis of schizophrenia, by sophisticated efforts to compare the degree to which MZ twins concordant for schizophrenia are similar with respect to different biological variables. He hopes thereby to identify which of these variables are intrinsically related to the pathogenesis of schizophrenia.

In all of these studies considerable emphasis is placed upon the Institute's system of diagnosis, and its categorization of schizophrenia. There are numerous reports of finding significant genetic as well as biological differences among their three major categories of schizophrenia. More intensive analyses of these findings seem desirable.

Epidemiological aspects

Our Soviet colleagues attach much significance to epidemiological research on schizophrenia in their search for causes of this disorder. Professor Snezhnevsky (1968, p. 443) has emphasized that in research on schizophrenia "one should employ clinical, pathophysiological, social, epidemiological and all forms of available biological methods." Lozovsky (1968, p. 200) has stated: "It may also be assumed a more or less full understanding of the nature and essence of schizophrenia cannot be obtained only with the aid of biological methods, it requires a comprehensive study including pathopsychological, clinical and sociological investigations."

The Head of the Epidemiological Department of the Institute of Psychiatry of the Academy of Medical Sciences is Dr. Anatoley B. Smulevich. This Department has the following sections:

1. An epidemiological section which concentrates on studies of the frequency of occurrence of schizophrenia in various population groups.
2. A clinical section which carries out a series of studies on the regularities in the development of schizophrenia. Illustrative of the areas of concern of the research workers in this group are a clinico-epidemiological study of favorably developing forms and remissions in schizophrenia; types of remissions and regularities in their development; psychopathology of favorably developing forms and remissions; the treatment of schizophrenia; and social readaptation of schizophrenic patients in industry, sheltered workshops, in rural areas.
3. A section for the coordination and planning of research. This group serves as a Field Research Center in relation to WHO activities. This includes the International Pilot Study of Schizophrenia, the International Study of Manic States and the WHO program of Standardization of Diagnosis Classification and Statistics of Mental Disorders.

Dr. Smulevich emphasized what he believes to be unique opportunities for epidemiologic research on schizophrenia afforded by the Institute's research program and the Soviet system for patient care for the mentally ill. First, the psychiatrists trained at the Institute use uniform diagnostic criteria for schizophrenia. A glossary of standard definitions of the syndromes in schizophrenia makes it possible to identify practically all schizophrenic states and to code them for statistical purposes. Second, the Soviet system of medical care for the mentally ill provides for special registration of all cases of mental disorders seen by a psychiatrist either in a mental hospital or dispensary. Also, every patient is personally examined by a clinician, and finally, the official population censuses of 1959 and 1970 provide basic data on the demographic characteristics of the population.

Dr. Smulevich made available to the delegation a series of tables he and his staff have developed on distributions of various features of "attack-like" schizophrenia by age of onset, sex and frequency of attacks. He also described clinical epidemiological studies of remissions in schizophrenia, with special reference to the social adaptation of the patient. This concept takes into account both the patient's ability to work and his clinical state and is reflected in the following classification of degrees of work disability: (a) patient cannot take care of himself, (b) patient is able to work in industry and to take care of himself at home, (c) patient's ability to work is limited. These studies are being carried out in three districts of Moscow, each with a population of 200,000 to 300,000 persons. Dr. Smulevich estimated that there are about 1,250 schizophrenics in each of these districts, a prevalence of 4 to 6 per 1,000. Dr. Smulevich also states that about two-thirds of schizophrenics, regardless of type, can live at home and most are ambulatory.

The epidemiological group has also developed an extensive schedule for use in their various studies. This schedule provides information on demographic characteristics of the patient, diagnosis, history of illness, current clinical status, hereditary factors, patient's premorbid characteristics and his childhood background. It provides additional information on the social situation of the patient at time of examination, important features in the dynamics of illness, indices of social and occupational adaptation, and the sources of information.

The Institute, then, is carrying out an extensive and intensive epidemiologic research program on schizophrenia. At this point it is difficult to make comparisons between findings in their studies and those done in the United States because of the differences in case-finding methods, diagnostic and assessment procedures, and the organization of their psychiatric service. The development of a collaborative research program might overcome these difficulties by developing clinical, followup and data collection procedures that could be applied in a standardized and uniform fashion in the United States and the U.S.S.R. Such research would make it possible to determine the extent to which differences may exist in rates of occurrence of schizophrenia in Soviet and American communities and in the course and outcome of illness in the patients that would be studied.

Microbiological aspects

Microbiological aspects of schizophrenia have a long history in the U.S.S.R. During the early part of the century it was believed that bacterial infection might play a role in the disease. These were eventually discarded and replaced by theories of viral infection. In the 1950's extensive examination of the serum and spinal fluid of schizophrenic patients in the U.S.S.R. showed elevated viral antibody levels as measured by the tests then available. Subsequent research claimed to have located virus-like corpuscles in the spinal fluid of almost half of the schizophrenics. This work has not been followed up in the U.S.S.R., but is of interest in view of the new models of slow and latent virus diseases recently found in the United States. As attention is turned toward viruses and their possible relationship to schizophrenia, it is important to review the earlier Soviet work and maintain contact with Soviet researchers who are still interested in it.

The outcome of the NIMH mission was a "Memorandum of Understanding" which was signed by both Professor Snezhnevsky and Dr. Brown. The memorandum stated an intention to submit plans for collaborative research on schizophrenia to the U.S.-U.S.S.R. Joint Committee for Health Cooperation at its next meeting. The plans outline possibilities for standardizing the categorization of main forms of schizophrenia and specific collaborative research projects in such areas as the biochemical, genetic, immunological, neurophysiological, microbiological, and epidemiological aspects of the disease. At its meeting in Washington in March 1973 the U.S.-U.S.S.R. Joint Committee accepted these plans as part of the health agreement between the two countries. Implementation of the plan is now underway.

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2

INTERNATIONAL REFERENCE CENTERS NETWORK FOR PSYCHOTROPIC DRUGS

ALICE A. LEEDS, M.D.

Since 1967 NIMH has been involved in a joint program with the World Health Organization to set up and operate an international network for the collection and dissemination of information on drugs used in the treatment of mental diseases. One of the aims of the International Reference Centers Network is to insure that psychiatrists become aware as rapidly as possible of the therapeutic action as well as the concomitant effects of psychotropic drugs.

In their Report to the Director General of the World Health Organization, the Scientific Group on Research in Psychopharmacology which met in Geneva in December 1966 proposed that WHO could provide a useful service by setting up International, Regional, and National Reference Centers on Psychopharmacology. These centers would form a network and facilitate the communication of psychotropic drug information to the worldwide scientific community.

In 1967, WHO followed up the recommendation by asking the National Institute of Mental Health to develop and operate such a network of Reference Centers. The Director of the NIMH accepted the invitation, and in July 1968 the International Reference Center for Information on Psychotropic Drugs became operational as a part of the Psychopharmacology Research Branch. A second International Reference Center for the Study of Side Effects of Psychotropic Drugs was established in Paris, France, under the direction of Professor P. Deniker.

During the intervening time, the following Regional Centers have been established by WHO:

For Europe: In Basel, Switzerland. Head: Prof. P. Kielholz
For Asia: In Sapporo, Japan. Head: Prof. Nozomi Suwa
For Africa: In Dakar, Senegal. Head: Prof. Henri Collomb

A Regional Reference Center for Central and South America will be appointed shortly, according to WHO. A Regional Center is not only responsible for the survey of psychotropic drug research in its own country but also for all other countries on the continent in which it is located which are not as yet part of the Network.

Collaborative and National Centers have been established in a number of countries where psychotropic drug research is an ongoing activity, and new centers are in the process of being appointed by WHO. All heads of centers are renowned scientists who direct research, treatment, and rehabilitation programs in their respective countries. At the present time, the following countries have a Collaborative or National Center:

AUSTRALIA	*Head:* Prof. L. G. Kiloh
AUSTRIA	*Head:* Prof. Peter Berner
BELGIUM	*Head:* Prof. Jean Bobon
CANADA	*Head:* Prof. Heinz E. Lehmann
CZECHOSLOVAKIA	*Head:* Prof. Oldřich Vinar
DENMARK	*Head:* Prof. Ole J. Rafaelsen
EGYPT	*Head:* Prof. Fathy Loza
GHANA	*Head:* Prof. E. B. Forster
HOLLAND	*Head:* Prof. H. M. van Praag
HUNGARY	*Head:* Prof. Istuam Tariska
INDIA	*Head:* Prof. V. N. Bagadia
ITALY	*Head:* Prof. Carlo L. Cazzullo
MEXICO	*Head:* Prof. Dionisio Nieto
NIGERIA	*Head:* Prof. M. O. Olatawura
NORWAY	*Head:* Prof. Odd Lingjaerde
POLAND	*Head:* Appointment pending
U.S.S.R.	*Head:* Prof. Reuben Nadzharov
WEST GERMANY	*Head:* Prof. Hanns Hippius
YUGOSLAVIA	*Head:* Prof. Nenad Bohaček

It should be stressed here that the individual centers do not attempt to duplicate services that are available in most nations through libraries or information centers of various types. It is the main purpose of the network to direct inquiries from researchers to persons or institutions where specific information may be obtained. The centers' function, therefore, is not technical in the sense that the dissemination of papers, bibliographies, or other published material becomes a major activity. The emphasis is on content—the substantive component of psychotropic drug information. The centers are not just storehouses of information. They are themselves actively involved in research; and by accepting the appointment to serve as an International, Regional, Collaborative, or National Center, they have agreed to continuously survey psychotropic drug research in their geographic area of responsibility. They report on these activities to the International Center in the United States, where all incoming information is duplicated and immediately disseminated to all centers.

The projects which have been developed by the WHO-NIMH Center since it became operational include the following:

1. *Classification of Psychotropic Drugs.* The basis for any exchange of drug information is a drug classification which can be used by all participants to transfer the information and data to the various centers and which also is meaningful to the scientific community to be served.

As a start, the United States Center developed a preliminary classification which was proposed to the centers, and their comments and revisions were invited. Since even the names of the drug groups vary from country to country, we added synonyms, working definitions, and subgroups with examples.

The originally proposed version was reviewed by all participants and various changes were recommended. When 80 percent of the group agreed on any one item, the decision was accepted as a working concept. This classification does not preclude the use of another terminology by individual centers in their other activities nor is it considered permanent. It can be changed at any time if new knowledge or experience should make such a step necessary, but all changes have to be approved by the international collaborators.

2. *The Psychotropic Drug Index Form.* Once the classification had been agreed upon, a form was designed on which the most important characteristics of a drug could be entered. Again, a preliminary form was developed which was reviewed by all heads of centers, and once more recommendations for changes were accepted when 80 percent of the reviewers agreed on such a change.

Each center enters the information on a particular drug on the form. The drug can be either a new psychotropic drug or an existing one for which a new use is being sought or claimed. The entered information may emanate from ongoing research at the particular center or from any other research facility in the geographic area for which the center is responsible.

To deepen and broaden the information on the forms, it was decided at the first workshop of the International Reference Centers Network in 1971 that individual centers could provide additional information relating to their own specialized research activities. In this manner, they will become what we choose to call "Centers of Excellence," very special resources of specific drug information, available to any investigator in the international scientific community.

3. *The International Directory of Investigators in Psychopharmacology.* Another project designed and produced by the WHO-NIMH Center is the *International Directory of Investigators in Psychopharmacology.* The first edition was published and distributed in October 1972. The purpose of this *Directory* is to facilitate communication among investigators in the field and to provide professionals, active or interested in psychopharmacology, with a reference tool to help locate colleagues of a specific interest profile. A questionnaire was developed to elicit those answers which would be useful in determining the affiliations, addresses, and *broad* as well as *specific* research interests of active investigators in the field. The names of approximately 8,000 candidates for inclusion in the *Directory* were culled from a number of mailing lists and the questionnaires were sent to them. Approximately 6,000 replies were received; of which, about 2,200 names were selected which correspond to the *single* criterion for inclusion—the person had to be presently actively engaged in or responsible for psychotropic drug research. The information from the questionnaires was processed using an automated data processing routine which produces a printout of biographical information as well as several indexes. A Geographic Index and a Major Fields Index follow the biographical sketch section. The third and major index is a so-called KWOC (keyword out of context) Index. It is a dictionary of terms taken from free sentences written by the responders describing the specific research activity and/or interest of the person. Updated editions will appear at 2-year intervals.

4. *A Listing of Journals from the International Literature.* A further project is a list of journals relevant to psychotropic drug research. To keep the list up to date, the centers notify the International Reference Center of new journals appearing in their geographic area of responsibility and of journals which may have ceased publication.

5. *The Psychopharmacology Bulletin.* This publication, which appears regularly four times a year, has become the main communication organ among the centers. The *Bulletin* has a readership of approximately 6,500 persons in the United States and abroad. Its emphasis is on rapid, informal reporting of work usually not covered by the more formal scientific literature. Each issue has a section entitled "The International Reference Center for Information on Psychotropic Drugs—Activities, Plans, and News Briefs." It reports on the establishment of new centers, meetings, publications, and other newsworthy items of interest to those working in psychopharmacology. Every second year a special issue of the *Bulletin* is published. It is devoted to a particular topic of high NIMH priority or special research interest.

6. *Workshops of the Centers.* To augment the collaboration of the far-flung centers, it was decided early in the development of the program that the heads of centers should meet every 2 years to discuss center activities, problems, and future plans. A workshop-type conference was chosen since it permits the informal discussion of the topics on the agenda and also provides the opportunity to work out any problems that may have arisen due to language or geographical barriers and the variety of cultural and professional backgrounds of the collaborators.

The first workshop of the centers took place in June 1971 in Plitvice, Yugoslavia, and was hosted by Professor Nenad Bohaček, Head of the Collaborative Center for Yugoslavia. The results of the workshop were most gratifying. Many of the collaborators met for the first time in person, learned more about research activities in the other countries, raised questions, and provided answers to problems of collection, storage, and dissemination of information connected with center projects. While no date has been set yet for the second workshop, all participants of the first have expressed the desire to continue meeting at regular intervals.

To bring at least some of the collaborators together between workshops, informal working sessions have been held at various international congresses. While only those attending the congress could participate, the sessions have usually included 12 to 15 heads of centers. All other centers were informed of the proceedings and no major decisions were made with only a part of the group present.

Additional projects are in the planning stage—all being in accordance with the WHO mission. At this time, WHO has appointed 23 centers and more are being negotiated between WHO and the respective national governments.

In establishing the program, WHO has added a new dimension to the transfer of psychotropic drug information. It has created an "invisible college" open to all investigators in the field. Through active international cooperation, an opportunity has been provided for investigators in psychopharmacology to be currently aware of new developments in this rapidly expanding field of ever-increasing import.

While the World Health Organization in Geneva, Switzerland, contributes financially to the International Center at NIMH via a small annual grant, the major support of the program comes from NIMH. There is a good reason for this investment. From the initial planning phase of the program with five centers, the network has grown to include many nations and has become a world-wide resource for knowledge availability in the field. Although the center at NIMH has developed projects and disseminated new drug information to foreign investigators, it has in turn *received* such data from around the world—information which cannot be found in the literature for 1 to 2 years, if ever. The entire scientific community profits through this exchange of information; and as a consequence, the mentally ill are being treated more effectively.

One of the main reasons for the accomplishments of the program may be found in the close cooperation of all partners—every one of the participants is deeply involved in all activities. While there is no pressure to contribute, the voluntary exchange of information has continued to be enthusiastic. Another reason is the harmonious relationship with WHO officials and their vital interest in the expansion of the network.

This program might well be a model for international cooperation. It has not only facilitated the exchange of scientific information but has also succeeded in strengthening bonds of friendship and understanding among these nations.

3

INTERNATIONAL PILOT STUDY OF SCHIZOPHRENIA[1]

Multi-national cooperation on mental health research has been, until recently, virtually non-existent. The nine-country study of schizophrenia described below, undertaken by the World Health Organization with NIMH support, stands as a major milestone on the path towards greater cooperation in the understanding of disease.

PREFACE

Schizophrenia is a major public health problem in many countries of the world. The extent and severity of this problem in the United States can be demonstrated in various ways. About 4.5 percent of all children born in the United States who reach the age of 15 years will develop schizophrenia during their subsequent lifetime. During the period 1960-70 inclusive, about 43 million live births occurred in the United States. About 1.9 million new cases of schizophrenia can be expected to occur from these births. Indeed, each annual cohort of births in the United States, now at a level of about 3.7 million, will yield approximately 160,000 cases of schizophrenia. This process will continue until methods are developed that can be used to prevent occurrence of this serious disorder.

As a result of this never-ending process and the extensive amount of inpatient and outpatient psychiatric care and related human services a large proportion of patients need over their lifetime, schizophrenia is the leading psychiatric disorder under treatment in the mental health facilities of the United States. These include public/private mental hospitals, psychiatric services in general hospitals, community mental health centers and various outpatient services. About 670,000—or 25 percent—of the 2.7

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[1] This chapter is adapted with permission from *WHO International Pilot Study of Schizophrenia: Basic Findings of Phase I*, to be published by the World Health Organization, Geneva. Morton Kramer, Sc.D., Chief, Biometry Branch, OPPE, NIMH, served as project officer for this research study.

million patients under care in these facilities are schizophrenics. Relating this number of schizophrenics to the population of the United States, at least 3.5 per 1,000 of the population of the United States are under care for this disorder.

Schizophrenia exacts a similarly high toll of disability in the populations of many other countries. As a result of its apparent universality, the WHO undertook a major international research project to answer basic questions relating to the development of instruments that might be used in a standardized and uniform way for the detection and diagnosis of schizophrenia and assessment of the fate of individuals with this disorder who were living in countries with different political, social, economic and cultural backgrounds. The World Health Organization, by virtue of its position and responsibilities as the specialized agency of the United Nations with primary responsibilities in the health field, was in a unique position to plan and organize a research activity as complex as this one, to manage the logistical and practical problems involved in the implementation of this research project.

The results of this project have important implications for international research on the epidemiology of the mental disorders. Administrators of mental health programs in every country of the world require considerable information on the manner in which various factors—biological, genetic, psychological, environmental, social, economic and cultural—affect the distribution of this disorder and lead to different approaches to the treatment and rehabilitation of affected individuals and their families, and account for differences in the course of the disease in patients living under such diverse conditions. Such research can provide knowledge which can be of great importance in improving existing programs designed to prevent and reduce the disabling effects of schizophrenia to patients and to alleviate the burden it places on their families and their communities.

MORTON KRAMER, Sc.D.

INTERNATIONAL PILOT STUDY OF SCHIZOPHRENIA

The International Pilot Study of Schizophrenia (IPSS) is a transcultural psychiatric investigation of 1,202 patients in nine countries—Colombia, Czechoslovakia, Denmark, India, Nigeria, Republic of China, Union of Soviet Socialist Republics, United Kingdom, and the United States of America. It was designed as a pilot study to lay scientific groundwork for future international epidemiologic studies of schizophrenia and other psychiatric disorders.

Central to any research into schizophrenia is the question of how the investigator decides who is schizophrenic and who is not. It is often difficult to compare the results of one study of schizophrenia with the results of another, because it is not clear that the same entity has been examined. Thus, standardized psychiatric assessment instruments and procedures are necessary basic foundations for psychiatric research of any kind, particularly for epidemiologic studies.

Variability of diagnostic practice is a problem for research within one country. When transcultural investigations are undertaken, this problem is compounded by differences in the sociocultural backgrounds of patients and investigators, and by differences in training and theoretical orientation of investigators.

Realizing the importance and difficulty of extending psychiatric knowledge in this area, the World Health Organization has developed a long-term program in psychiatric epidemiology and social psychiatry. This program is divided into four parts. The first part, Program A, is concerned with the standardization of psychiatric diagnosis, classification and statistics. Program B is concerned with the development of internationally applicable techniques for the evaluation of mental patients in epidemiological and other psychiatric studies. Programs A and B are preparatory for Program C, which will consist of comprehensive studies of psychiatric disorders in geographically defined populations. The fourth part, Program D, is an international training program in psychiatric epidemiology and social psychiatry.

The IPSS is the major vehicle of Program B. Schizophrenia was chosen for the study because of its apparent universality, the fact that it is one of the most disabling of all the disorders of man, and the amount of work already carried out on its epidemiological aspects. Although the project deals specifically with schizophrenia, it is intended to answer questions and stimulate the formulation of hypotheses in the broad areas of transcultural and epidemiological psychiatry. It was hoped that additional advantages of such a pilot study would be the development of a network of research centers in various countries, which would serve as solid bases for future international work, and the training of psychiatrists and other mental health workers in the field of cross-cultural psychiatric epidemiology.

It was the aim of this study to answer certain basic methodological questions and questions about the nature and distribution of schizophrenia. There were three major methodological questions:

1. Is it feasible to carry out a large-scale international psychiatric study requiring the coordination and collaboration of psychiatrists and mental health workers from different theoretical backgrounds and from widely separated countries with different cultures and socioecnomic conditions?
2. Is it possible to develop standardized research instruments and procedures for psychiatric assessment which can be reliably applied in a variety of cultural settings?
3. Can teams of research workers be trained to use such instruments so that comparable observations can be made both in developed and developing countries?

The major questions about the nature and distribution of schizophrenia which this study was intended to answer were:

1. In what sense can it be said that schizophrenic disorders exist in different parts of the world?
2. Are there groups of schizophrenic patients with similar characteristics present in every one of the countries studied?
3. Are there groups of schizophrenic patients whose symptoms differ in form or content from one country to another, and if so, are such differences the result of variations in diagnostic practice or are they true cultural differences in the manner of presentation of the various types of schizophrenia?
4. Does the clinical course of schizophrenia in one country differ from that in other countries?
5. How do the characteristics of schizophrenic patients compare with those of other psychoses in various countries?
6. Does the course of other psychoses differ from country to country?

These are complex questions with important practical implications. Only when such questions are answered is it possible for the proper planning and evaluation of mental health services in many nations of the world to proceed on firm ground. The answers to these questions are needed to provide a foundation for meaningful and comparable investigations into the etiology of schizophrenia.

It is now 5 years since the preparations for the study began and 3 years since the first patient was examined. A vast amount of data has been collected and analyzed, and many of the questions listed above can now be answered, although the answers to some must await the completion of analysis of data from a 2-year followup phase of the study.

It is now possible to consider the degree to which the methodological questions and the questions about the nature and distribution of schizophrenia were answered. Underlying the immediate aim of answering these questions was the ultimate purpose of fostering epidemiological studies with a view toward achieving better prevention and control of disease. The attempt to reach an understanding between morbidity and environment is at the heart of social medicine and of its sub-discipline, social psychiatry. That attempt is most likely to be successful if one can begin with agreed definitions.

The immediate goals, therefore, were deliberately circumscribed. The investigators were well aware of the pitfalls in this field of research and of the opinion of some experts that the time is not yet ripe for large-scale international projects of this type. It was felt, however, that progress could probably be made if precise, limited, and short-term goals were set with a main emphasis upon method. Answering the question of whether there is any exact and communicable sense in which it can legitimately be said that schizophrenia exists in nine different populations would represent a clear addition to existing knowledge. Good psychiatric studies are being carried out all over the world at the moment, but their results cannot be fully utilized if the "schizophrenia" of one study cannot be compared with that of another. Of course no attempt was made to measure the distribution of the functional psychoses in the populations studied. Any clues found suggesting a differential distribution would be regarded as a bonus. Nevertheless, if the question of the existence of schizophrenia in nine populations could be answered, this would mean that it had indeed been possible to devise methods of standardizing the collection and classification of clinical data and that specially trained research teams had been able to apply these methods successfully. An advance would therefore have been made towards solving one of the fundamental epidemiological problems. Moreover, the benefit would not be limited to the comparability of epidemiological studies. Investigations in genetics, etiology, precipitation, treatment, prognosis, or course would acquire meaning on a new level if they could, with confidence, be compared with each other.

Thus, the immediate aims of the IPSS, though limited in themselves, have important implications.

What has been learned to date regarding the major methodological questions is as follows:

Collaborative International Psychiatric Studies

One of the methodological questions which the IPSS was intended to answer was whether it is feasible to coordinate and make operational a study which would involve the development and collaboration of psychiatric research centers in many different countries with different cultural and socioeconomic conditions.

The many problems involved in carrying out such a study are described in detail in the main report of the IPSS. What is striking about the IPSS experience is that it demonstrates that it is possible to effectively operationalize a large-scale transcultural investigation if careful attention is paid to developing central coordination, arranging frequent opportunities for face to face communication among the collaboraters, and providing adequate training in the research procedures.

The quality of the data supplied by the Field Research Centers (FRC) in the developing countries and their organization of research compared favorably with the data produced by the centers in the developed countries. This phenomenon underscores the fact that good research can be done by research workers from developing countries, provided the research potentials of such countries are properly organized. The use of workers from the countries in which the research is taking place is in fact essential to any kind of long-term work in all centers, developing or developed. With workers who are stable in location within the country and within the research center, it is possible to follow up ideas generated in the course of a research project with continued or expanded studies. If research workers are brought in from outside, such continuity is unlikely, and valuable research opportunities may be lost.

Complications in communication among centers that are widely distant from one another lead to many delays at all stages of the project. It appears from the experience gained in the IPSS that the time required for a large-scale international study is directly proportional to the distances between the centers.

Perhaps the major long-term benefit of organizing a group of research centers within a number of widely separate and socioculturally different countries is the establishment of an international research network that can serve as a foundation for future international research projects and for the training of research workers.

Development of Standardized Research Instruments and Procedures

Of the various measuring instruments used and developed within the IPSS, the advantages and limitations of the partially standardized Present State Examination (PSE) have been confirmed. The limitations are built into the instrument and must be recognized if it is to be used properly.

First, the PSE items are restricted to conventional clinical phenomena such as phobias, obsessions, delusions or perceptual disorders, and the schedule is not intended to provide information about more general attitudes, fantasies, or the content of dreams.

Second, the period covered by the PSE is 1 month prior to the interview, for subjectively-described symptoms, and the actual period of examination for the rating of speech, observed affect, and behavior. Thus, disorders that require a clinical history for diagnosis, such as personality deviations, mental retardation, drug or alcohol abuse, and so on, cannot be described by the PSE procedure except insofar as a neurotic or psychotic disturbance is superimposed.

Third, the PSE is most applicable during the acute stages of an illness (and may, therefore, occasionally have to be given in two or more stages). Signs and symptoms of organic brain disease are excluded since there are other reliable means of rating them.

Fourth, the interview is based upon cross-examination. The clinician has an agreed definition of each symptom in mind and questions the patient until he is satisfied that the symptom is present or absent. The decision is the examiner's; the patient's Yes or No is not in itself decisive in making a rating. Thus, psychiatrists who are used to a nondirective interview may find it difficult to adjust their technique, and some are unwilling to do so. These limitations are necessary for the success of the interview and they must be borne in mind when interpreting the results.

The advantages of the PSE method were also demonstrated by the study. It is acceptable to patients and to most clinicians and was readily applicable in all nine centers. The symptoms as defined are readily comprehensible and rateable. The items translate easily into languages of very different structures. The interviewing technique is surprisingly flexible without undue loss of reliability. Much of the validity of the rating, from a clinician's point of view, is based on the fact that he is not completing a questionnaire but deciding for himself whether or not a symptom is present. When a skilled clinician carries out a PSE it is difficult to detect, without special knowledge, that the interview is in any way standardized. The items rated are clearly relevant to the information that most clinicians want to gather about their patients, and they provide a means of comprehensively covering the "present state." Many psychiatrists incorporated parts of the PSE into their ordinary clinical work and it has been successfully used in postgraduate education. The virtues of the procedure so far as classification is concerned will be discussed below.

Training in the use of the PSE was given initially in London. Throughout the period of the study, regular training seminars were held at which video-taped, filmed, and live interviews were rated and item ratings discussed in detail. This was most effective for clarifying the meaning of questions and definitions and for making explicit the instructions that could not be specified in detail in the schedule. Coding problems were also identified and discussed. Intercenter reliability could also be partly assessed by considering the results of these exercises.

More direct assessment of reliability was carried out in the centers themselves. Every sixth interview was a simultaneous interview, and in addition 45 consecutive interviews were arranged in which the same patient was interviewed on two separate occasions at an interval of a few days. The intraclass correlation coefficient was used to analyze the reliability of item ratings. The range found for pairs of psychiatrists was 0.43 to 0.97, with a median of 0.77. Items rated on patients' reports were more reliable than those rated on observation.

The biggest gap in reliability testing arose from the fact that it was not possible for one of the Headquarters' psychiatrists to spend a great deal of his time visiting centers and acting as a central reference point for assessing interview technique. Rating of patients' responses, coding, and classification could all be tested, but there is very little evidence to indicate whether interview techniques varied markedly from one center to another. There is no doubt that errors in rating occurred. There must have been relatively few errors, if the reliability results are accepted. Those that were discovered were, however, very interesting, since it was possible to learn from them. It became clear that a specific glossary of symptoms was needed that would clearly define the differences between particular symptoms (for example the difference between delusions of reference and auditory hallucinations speaking in the third person, the difference between delusions of control and a subcultural belief in being possessed, or the difference between thought insertion and a grandiose conviction that thoughts come from God).

Thus the Present State Examination has been subjected to a fairly extensive test in nine different centers and its acceptability, applicability and reliability have seemed satisfactory.

The particular version of the PSE used in this study is not recommended for general use unless one's aims are similar to those of the IPSS and special training is given. In the current study extensive clinical trials of the PSE at the Field Research Centers led to revisions and adaptations of the PSE that increased its suitability for use in the IPSS. The experience from the IPSS provides rich material for further revisions or adaptations of the PSE for other national, international, or transcultural studies.

Other instruments were developed specially for this study. They are, therefore, still relatively unstandardized and unreliable, in comparison with the PSE. The difficulties of making comparable cross-cultural assessments of details of psychiatric history, social background, and functional background are immense. Nevertheless, since such assessments are crucial to the study of psychiatric disorders it is essential that further work be done to develop methods of evaluating these variables.

Development of Research Teams

Nine centers were chosen both because they had psychiatrists with prior interests and experience in the field of epidemiology and because they conformed to criteria set out in the study, making it likely that an appropriate series of patients could be collected. Five centers were situated in research institutes with a long tradition of scientific work. They provided their own staff and facilities and fitted the IPSS into their research programs. The other four centers were in university departments of psychiatry located in cities in developing countries. It was found that participants in these centers were well able to fit the extra commitments into their round of duties and the quality of documents was, in general, quite as high as from the other centers.

Psychiatrists and social scientists in all nine FRC's found it relatively easy to master the techniques used in the study and apply them reliably, to assist in the design and direction of a research operation, to organize and manage the collection, coding, and dispatch of data, and to cooperate with each other in ensuring balanced progress of the whole project.

All of the research teams found the experience scientifically and clinically rewarding, and there is no doubt that in each center the

IPSS fostered or initiated a tradition of epidemiological research. Moreover, a high morale developed within each team and among the centers so that collaboration was mutually instructive and rewarding. Several lines of investigation have been suggested by the study and are being carried out in collaboration between two or more centers. Clinical training has also been enriched.

Thus, it can be concluded that teams of research workers can indeed be trained to use standardized research instruments and procedures so that comparable observations can be made both in developed and developing countries. This aspect of the IPSS has been a thoroughgoing success.

The development of teams of this kind has a further important implication, particularly in the developing countries. Once a tradition of skilled epidemiological work has been established in a particular school, some of the younger psychiatrists trained there will themselves wish to enter the field. It may be hoped that future teachers of psychiatric epidemiology have been nurtured by the present study.

Of the questions about the nature of schizophrenia, those that have to do with course are best considered after followup analyses are complete. The other questions pertain to the identification of schizophrenia in different parts of the world, the similarities and differences among schizophrenic groups of patients in different countries, and the similarities and differences between schizophrenia and other functional psychoses. These topics have been approached in five major ways: determination of the distribution of diagnoses in the nine series of patients, analysis of the psychopathology of patient groups, application of computer-simulated diagnosis, cluster analysis, and the identification and description of a concordant group of schizophrenias on which three methods of classification agree.

1. *Distribution of clinical diagnoses.* The most direct way to study the question of whether schizophrenia and other functional psychoses can be successfully identified in nine culturally contrasted populations was to study the distribution of diagnoses in the nine series of patients. When clinical diagnosis was the criterion, there was very little doubt about the answer, since all the centers contributed cases with a diagnosis of schizophrenia, mania, and depressive psychosis. In itself, of course, this does not really answer the question, since it is quite conceivable that these terms mean different things in different parts of the world. The other four approaches made it possible to consider this question in more detail.

2. *Analysis of psychopathology.* Since all of the patients had

been examined with the PSE, clinical profiles could be described for the various diagnostic groups showing the frequency of symptoms as indicated by the ratings on PSE items, and the profiles could then be compared between diagnostic groups and centers. Such comparisons indicated that the group of patients given a diagnosis of schizophrenia in one center tended to have a symptom profile similar to that of patients given the same diagnosis in the other centers. This was also true of patients with psychotic depression. The profiles of the schizophrenic patient groups and the psychotically depressed groups were markedly different from each other, both overall and within each center in which numbers were large enough to make comparison possible. It appears reasonable to suggest, on the basis of this evidence alone, that examples of these two conditions occur in all centers.

There was also a high degree of similarity among the centers with regard to the psychopathology of individual schizophrenic subgroups when comparisons were carried out among those centers that had large enough numbers of patients in individual schizophrenic subgroups to make analysis possible. However, the subclassification of schizophrenia does not appear entirely satisfactory, since the degree of intracenter similarity among schizophrenic subgroups was as high or higher than the degree of intercenter similarity of individual schizophrenic subgroups.

3. *Computer-simulated diagnosis.* An attempt was made to standardize the diagnostic principles that clinicians seem to use and to apply them, in the form of a computer program, to PSE data in order to obtain a completely standard reference classification. If the computer classification matched the diagnostic classification used by participating psychiatrists there could be little doubt that (a) the psychiatrists' diagnostic rules had been represented in some precisely specifiable way in the computer's program of instructions and that (b) the same principles must apply throughout all the centers. In that case either the computer classification or the psychiatrists' diagnoses could be used to answer the question about the distribution of the major diagnostic groups in the nine series.

If, on the other hand, there were differences between the two types of classification, it might be possible to utilize them to discover how to make diagnostic processes more reliable. If, for example, the computer classification agreed with the diagnoses of one group of psychiatrists but not with those of another group, it would be hoped that a study of the differences would reveal what principles of diagnosis were being used by the two groups and whether the differences could be reconciled.

In fact, there was a very substantial measure of agreement between the CATEGO computer classification and clinical diagnosis (grouped into schizophrenia, mania, and psychotic depression) in seven of the centers, and a fair degree of agreement even in the other two FRC's. Within the limits set by the PSE and the CATEGO systems, therefore, an unequivocal answer can be made to the distribution of the functional psychoses. Using as a criterion a concordant classification by the center psychiatrist and CATEGO, the three functional psychoses appear in every one of the nine series of patients. In particular, schizophrenia, in a form immediately recognizable by any psychiatrist in the world (and usually diagnosed as the paranoid variety), is by far the commonest condition in each series. The key symptoms in most cases are delusions of control, thought broadcast, thought insertion, thought withdrawal, and auditory hallucinations of certain kinds. Mania also occurs in every one of the nine series, as do depressive disorders.

The identification of subgroups of schizophrenia was not so convincing. The paranoid, hebephrenic, acute and schizo-affective varieties seemed rather difficult to distinguish by using CATEGO procedures. Perhaps the addition of factors such as age, sex, mode of onset, and previous personality would enable a reliable differential diagnosis to be made.

The only major disagreements with the CATEGO classification were found in the two series collected in Moscow and in Washington. The Moscow Center is renowned for its particular school of diagnostic thought. The course of the condition is much emphasized and certain changes in the patient's personality are regarded as very significant. These are precisely the sorts of factor that are not considered by CATEGO. The situation in Washington is generally similar, though different in detail. Here, too, there is considerable preoccupation with personality changes, social performance, and details of the history, which are not considered by CATEGO. Although the Moscow school uses schizophrenic subgroups that are unfamiliar elsewhere (shift-like, sluggish, and periodic), while the American Center uses the conventional categories, the effect in both cases is to considerably broaden the limits of schizophrenia as compared with the usage of the other seven centers and of CATEGO. Whether it would be possible to specify precisely a further set of rules that could be applied to reliably measured historical data is impossible to say, but the effort would appear to be worthwhile.

Certain uncommon but important differences between diagnostic and computer groupings indicated the need for more careful definition of symptoms such as delusions of control, thought insertion, and various kinds of auditory hallucinations. These can be incorporated in any future study.

4. *Cluster analysis.* The CATEGO procedure is based upon a hierarchical principle similar to that used by clinical diagnosticians. If certain fundamental schizophrenic symptoms are found, a diagnosis of schizophrenia is made irrespective of the other symptoms present, unless, of course, they are organic in origin. Only if the diagnosis is *not* schizophrenia is another diagnosis considered. This is not, of course, absolutely true but it does appear to be generally the case. A completely different approach is that of cluster analysis, where it is assumed that all the PSE items rated have equal diagnostic weight. Once the cluster program has been selected, it is possible to classify a series of patients without recourse to any clinical judgment whatsoever. Of the various methods of clustering, McKeon's technique was chosen for extensive application and the clusters thus derived were compared with center diagnosis, on the one hand, and CATEGO class on the other.

If diagnostic or CATEGO groups are considered in terms of clusters, they appear to have little homogeneity or substance. Paranoid schizophrenia, for example, which looks so solid and stable in many of the profiles and appears to be confirmed as the central schizophrenic group by CATEGO analysis, more or less disappears when considered in terms of the McKeon clusters. This is presumably because clustering criteria give the same weight to a symptom such as worrying as to a symptom such as thought insertion. The clusters, therefore, are quite different from diagnoses, although clinically recognizable syndromes do occur. Cluster analysis also has the limitation that it does not produce a definitive classification of patients in any one output since the assignment of patients to clusters is always rather dependent on the particular series of cases in the population being evaluated. Nevertheless, of the three classification methods applied in this study, cluster analysis is the only one capable of directly suggesting new possibilities of classification based on weighing the data from the entire series. It is also the only one capable of directly suggesting groups of patients that differ from the traditional ones: schizophrenia, mania, and depression. For example, the technique was able to separate 28 patients from the Agra Center having particular florid and bizarre symptoms from the rest of the series of 1,202 patients.

The cluster analysis also gave some support to the validity of two of the schizophrenic subgroup diagnoses—catatonic and hebephrenic schizophrenia—since patients assigned these diagnoses by centers tended to be concentrated in particular clusters. Some evidence was found that selected schizophrenic subgroups as diagnosed clinically have particularly high scores on specific symptoms. Neither the profile descriptions of the diagnostic groups nor the CATEGO procedure was able to produce further evidence for the validity of the schizophrenic subgroups.

The groups of patients derived by any clustering technique will ultimately stand or fall on their clinical usefulness and their ability to predict outcome or other variables that can serve to support their validity. Clearly, this approach can be taken much further, and may be a substantial line of research in the future.

5. *The concordant group.* Another approach to investigating the question of whether there are similar groups of schizophrenic patients in the different centers was to compare the results of clinical diagnosis, CATEGO classification, and cluster analysis. It was felt that patients who received both a clinical and CATEGO diagnosis of schizophrenia and who fell into clusters which select out schizophrenic patients represented a group which would include few patients considered schizophrenic because of lack of standardization of the diagnostic process or because of culture-bound factors. This group of patients, on whom the three systems of classification agreed, was referred to as the concordant group. It was demonstrated that there were concordant schizophrenics in every one of nine series of patients, indicating again that there is a very specifiable sense in which it can be said that in this study there are similar groups of schizophrenic patients in every one of the nine centers. Concordant schizophrenics showed a higher degree of similarity among centers than did the group of all schizophrenics. During the followup phase of the study, particular attention will be paid to the concordant group, to determine if the prognosis and course of this group are more or less uniform than the prognosis and course of the group of all schizophrenic patients or of particular clinical schizophrenic subgroups.

Conclusions

The results outlined above indicate that schizophrenia, mania, and depressive psychoses can indeed be found in the series of patients collected in the nine centers by the application of the procedures outlined above. Other systems of collecting information and other principles of classification might well have produced different results, much less favorable to the nosology in current use. What the IPSS has shown is that studies of schizophrenia in the more restricted sense of the term can be carried out in different parts of the world with the assurance that the results will be comparable, provided that techniques similar to those used in this study are adopted. This marks a considerable albeit limited advance. The broader concept of schizophrenia used (though probably in different senses) in Moscow and Washington need not, of course, be discarded, but whatever accounts for the difference between the narrow definition (now precisely specifiable) and the broad definition carries the same disadvantage as the whole concept of schizophrenia used to. Unless it can be defined in a practical and readily applicable way, and the definition communicated to others without difficulty, it cannot be studied with any hope of producing results that will be comparable in all centers of research. That does not mean that useful work is precluded. It does, however, mean that useful results are less likely. This, then, is a line of research that is urgently needed.

There is less controversy about mania and depressions but it is still encouraging to be able to identify these conditions reliably and to be able to separate them from schizophrenia. One point that the methods used do not evaluate as effectively as might be thought desirable is whether there are also considerable differences between patients who are given a common diagnostic label of schizophrenia, mania, or depressive disorder. Our techniques have mainly been designed to discover commonality, and this is undoubtedly present. However, cluster analysis suggests that there are also differences between patients given the same diagnosis in different centers. Other systems of classification might also eventually be found useful in addition to the one in current use.

The followup phase of the IPSS will provide an opportunity to test various hypotheses derived from the analyses presented in this volume. For example, according to the hierarchical hypotheses incorporated in the CATEGO program, it would be expected that rather few patients in the affective groups would develop schizophrenic symptoms during the followup period, while many schizophrenic patients will probably do so. On the other hand, affective symptoms will occur commonly in both groups. Verifying these predictions is hardly a means of external validation; it is closer to a test of temporal consistency. Social outcome may provide more of an external criterion. The test of response to treatment is also available. These external criteria can likewise be applied to clinical diagnoses, units of analysis, empirically-derived clusters, and to the concordant group of schizophrenias. The ability of each to predict course and clinical and social outcome will give useful information as to their value.

The followup phase will also permit the straightforward description of the clinical and social course of the various diagnostic groups in nine different parts of the world. The results of these studies will be reported in a forthcoming report.

Thus, in addition to the very specific questions for future investigation suggested by the IPSS results (Why is mania so common in the Aarhus series? Why were catatonic and unspecified schizophrenia diagnosed so frequently in Agra? What are the specifics of the "extra" schizophrenic cases in Moscow and Washington?), a number of general lines of work are suggested.

Apart from the fairly clear-cut answers that can be given to the questions about the nature and distribution of schizophrenia, the main value of the IPSS is the demonstration that it is possible to apply techniques of describing and classifying clinical phenomena in a standard way so that at least three main groups of diagnoses can be identified within specified limits in many parts of the world. Genetic, etiological, epidemiological, therapeutic, and prognostic studies should benefit by the increased comparability that this implies. Above all, however, the status of psychiatry within the expanding public health programs being developed by WHO and national governments depends upon its having a solid clinical groundwork on which planning and evaluation can be based. It is felt that as a result of the IPSS, this clinical psychiatric groundwork is measurably firmer than it was before.

4

SIX-COUNTRY STUDY OF THE EFFECTS OF MODERNIZATION[1]

ALEX INKELES, Ph. D.

The following study was supported by grants from NIMH. It illustrates multinational research in the behavioral sciences, in this case on the process of modernization and its effects on man.

Since 1962 a group of my colleagues and I at Harvard University have been working to understand the impact on the individual of his participation in the process of modernization. In the pursuit of this goal we devised a complex and comprehensive questionnaire touching on a wide variety of life situations and intended to measure a substantial segment of the range of attitudes, values, and behaviors we conceive as particularly relevant to understanding the individual's participation in the roles typical for a modern industrial society. This questionnaire we then administered to some 6,000 young men in six developing countries: Argentina, Chile, India, Israel, Nigeria, and East Pakistan. All three of the continents containing the overwhelming majority of developing nations are represented. The sampled countries cover the range from the newest nations which have only recently won their independence to those with a long history of self-governance; from those only now emerging from tribal life to those with ancient high cultures, and from those furthest removed from, to those most intimately linked to, the European cultural and industrial social order. The men interviewed were selected to represent points on a presumed continuum of exposure to modernizing influences, the main groups being the cultivator of the land still rooted in his traditional rural community; the migrant from the countryside just arrived in the city but not yet integrated into urban industrial life; the urban but nonindustrial worker still pursuing a more or less traditional occupation, such as barber or carpenter, but now doing so in the urban environment even though outside the context of a modern large-scale organization; and the experienced industrial worker engaged in production using inanimate power and machinery within the context of a more or less modern productive enterprise. To these we have added tests of secondary school and university students who enjoy the presumed benefits of advanced education. Within and across these sample groups we exercised numerous controls in the selection of subjects and in the analysis of our data, both to understand the influence and to prevent the uncontrolled effects of sociocultural and biosocial factors such as age, sex, education, social origins, ethnic membership, past life experience, and the like.

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Our interview included almost 300 entries. Some 160 of these elicited attitudes, values, opinions, and reports on the behavior of others and oneself, touching on almost every major aspect of daily life. The questionnaire included various tests of verbal ability, literacy, political information, intelligence, and psychic adjustment. In some cases it took four hours of interviewing to complete—a demanding experience for both interviewer and interviewee.

We completed our field work near the end of 1964, and since that time have been engaged in processing and then later analyzing the very substantial body of data we collected. At this time our analysis is sufficiently far advanced so that we can discern the main outlines of some of the conclusions we must draw. To present these within the rigorous limits of the time and space currently allotted for scholarly communications requires imposing a telegraphic style and forgoing the presentation of detailed evidence to support my arguments. Each of my conclusions will address itself to one of the main issues to which our research was directed. Each issue is presented in the form of a question to which I will assay an answer. The four main issues dealt with here should not be understood as being the only ones to which we addressed ourselves; neither should it be assumed that our data provide answers only to these questions.

1. *How far is there an empirically identifiable modern man, and what are his outstanding characteristics?*—Many social scientists have a conception of the modern man, but few have submitted this conception to an empirical test to ascertain whether this type really exists in nature and to determine how often he appears on the scene. Important exceptions may be found in the work of Kahl (1968), Dawson (1967), and Doob (1967). We too have our model of the modern man, a complex one including three

components which we refer to as the analytic, the topical, and the behavioral models, all of which, we assumed, might well tap one general underlying common dimension of individual modernity.

We believe our evidence (presented in some detail in Smith and Inkeles 1966) shows unmistakably that there is a set of personal qualities which reliably cohere as a syndrome and which identify a type of man who may validly be described as fitting a reasonable theoretical conception of the modern man. Central to this syndrome are: (1) openness to new experience, both with people and with new ways of doing things such as attempting to control births; (2) the assertion of increasing independence from the authority of traditional figures like parents and priests and a shift of allegiance to leaders of government, public affairs, trade unions, cooperatives, and the like; (3) belief in the efficacy of science and medicine, and a general abandonment of passivity and fatalism in the face of life's difficulties; and (4) ambition for oneself and one's children to achieve high occupational and educational goals. Men who manifest these characteristics (5) like people to be on time and show an interest in carefully planning their affairs in advance. It is also part of this syndrome to (6) show strong interest and take an active part in civic and community affairs and local politics; and (7) to strive energetically to keep up with the news, and within this effort to prefer news of national and international import over items dealing with sports, religion, or purely local affairs.

This syndrome of modernity coheres empirically to meet the generally accepted standards for scale construction with reliabilities ranging from .754 to .873 in the six countries. Looking at the range of items which enters into the scale, one can see that it has a compelling face validity. In addition, the empirical outcome accords well with our original theoretical model and, indeed, with those of numerous other students of the problem. Evidently the modern man is not just a construct in the mind of sociological theorists. He exists and he can be identified with fair reliability within any population which can take our test.

To discover that there are indeed men in the world who fit our model of a modern man is comforting, but perhaps not startling. After all, we can probably somewhere find an example of almost any kind of man one might care to delineate. It is important to emphasize, therefore, that men manifesting the syndrome of attitudes, values, and ways of acting we have designated "modern" are not freaks. They are not even rare. On the contrary, there are very substantial numbers of them in all six of the countries we have studied.

Furthermore, we consider it to be of the utmost significance that the qualities which serve empirically to define a modern man do not differ substantially from occupation to occupation, or more critically, from culture to culture. In constructing our standard scales of modernity we utilized a pool of 119 attitude items. In each country these items were then ranked according to the size of the item-to-scale correlation, and the subset of items having the highest correlations was then selected as defining the modern man for the given country. Using this "coherence" method to construct the national modernity scales, we might have found a totally different set of items defining the syndrome of modernity in each of our six national samples. Indeed, if we used only the twenty items ranking highest in the item-to-scale correlations for each country, we could theoretically have come out with six totally different syndromes, one for each country, no one overlapping in the least with any other. The actual outcome of the analysis was totally different. The probability that even one item would come out in the top fifty in all six countries is approximately five in a thousand. We actually had ten items which were in the top fifty in all six countries, sixteen more in the top fifty in five countries, thirteen more which were in this set in four of the six countries. The probability that the same thirty-nine items would by chance be in the top fifty in four of the six countries is so infinitesimal as to make our results notable indeed.

This means that what defines man as modern in one country also defines him as modern in another. It argues for the actual psychic unity of mankind in a structural sense and the potential psychic unity of mankind in the factual sense. In speaking of the unity of mankind in terms of psychic structure, I mean that the nature of the human personality, its inner "rules" of organization, is evidently basically similar everywhere. That is, the association of the elements or components of personality do not—and I think in substantial degree *cannot*—vary randomly or even relatively freely. There is evidently a system of inner, or what might be called structural, constraints in the organization of the human personality which increase the probability that those individuals—whatever their culture—who have certain personality traits will also more likely have others which "go with" some particular basic personality system. So far as the future is concerned, moreover, I believe that this structural unity provides the essential basis for greater factual psychic unity of mankind. Such a factual unity, not merely of structure but of *content*, can be attained insofar as the forces which tend to shape men in syndromes such as that defining the modern man become more widely and uniformly diffused throughout the world. This point requires that we consider the second issue to which our research addressed itself.

2. *What are the influences which make a man modern? Can any significant changes be brought about in men who are already past the formative early years and have already reached adulthood as relatively traditional men?*—Education has often been identified as perhaps the most important of the influences moving men away from traditionalism toward modernity in developing countries. Our evidence does not challenge this well-established conclusion. Both in zero-order correlations and in the more complex multivariate regression analysis, the amount of formal schooling a man has had emerges as the single most powerful variable in determining his score on our measures. On the average, for every additional year a man spent in school he gains somewhere between two and three additional points on a scale of modernity scored from zero to 100.

Our modernity test is not mainly a test of what is usually learned in school, such as geography or arithmetic, but is rather a test of attitudes and values touching on basic aspects of a man's orientation to nature, to time, to fate, to politics, to women, and to God. If attending school brings about such substantial changes in these fundamental personal orientations, the school must be teaching a good deal more than is apparent in its syllabus on reading, writing, arithmetic, and even geography. The school is evidently also an important training ground for inculcating values. It teaches ways of orienting oneself toward others, and of conducting oneself, which could have important bearing on the performance of one's adult roles in the structure of modern society. These effects of the school, I believe, reside not mainly in its formal, explicit, self-conscious pedagogic activity, but rather are inherent in the school as an *organization*. The modernizing effects follow not from the school's curriculum, but rather from its informal, implicit, and often unconscious program for dealing with its young charges. The properties of the rational organization as a hidden persuader—or, as I prefer to put it, as a silent and unobserved teacher—become most apparent when we consider the role of occupational experience in shaping the modern man.

We selected work in factories as the special focus of our attention in seeking to assess the effects of occupational experience in reshaping individuals according to the model of the modern man. Just as we view the school as communicating lessons beyond reading and arithmetic, so we thought of the factory as training men in more than the minimal lessons of technology and the skills necessary to industrial production. We conceived of the factory as an organization serving as a general school in attitudes, values, and ways of behaving which are more adaptive for life in a modern society. We reasoned that work in a factory should increase a man's sense of efficacy, make him less fearful of innovation, and impress on him the value of education as a general qualification for competence and advancement. Furthermore, we assumed that in subtle ways work in a factory might even deepen a man's mastery of arithmetic and broaden his knowledge of geography without the benefit of the formal lessons usually presented in the classroom. Indeed, the slogan for our project became, "The factory can be a school—a school for modernization."

Although our most sanguine hopes for the educational effects of the factory were not wholly fulfilled, the nature of a man's occupational experience does emerge as one of the strongest of the many types of variables we tested and is a quite respectable competitor to education in explaining a person's modernity. The correlation between time spent in factories and individual modernization scores is generally about 0.20. With the effects of education controlled, the factory workers generally score eight to ten points higher on the modernization scale than do the cultivators. There is little reason to interpret this difference as due to selection effects since separate controls show that new workers are not self- or preselected from the village on grounds of already being "modern" in personality or attitude. Nevertheless, we can apply a really stringent test by making our comparisons exclusively within the industrial labor force, pitting men with few years of industrial experience against those with many, for example, five or more. When this is done, factory experience continues to show a substantial impact on individual modernization, the gain generally being about one point per year on the overall measure of modernization (OM).

It is notable that even when we restrict ourselves to tests of verbal fluency and to tests of geographical and political information, the more experienced workers show comparable advantages over the less experienced. To choose but one of many available examples, in Chile among men of rural origin and low education (one to five years)—and therefore suffering a double disadvantage in background—the proportion who could correctly locate Moscow as being the Soviet Russian capital rose from a mere 8 percent among the newly recruited industrial workers to 39 percent among those with middle experience and to 52 percent among the men who had eight years or more in the factory. Even among those with the double advantage of higher education (six to seven years) and urban origins, the proportion correctly identifying Moscow decidedly rose along with increasing industrial experience, the percentages being 68, 81, and 92 for the three levels of industrial experience, respectively. It should be clear from these data that the factory is serving as a school even in those subjects generally considered the exclusive preserve of the classroom.

To cite these modernizing effects of the factory is not to minimize the greater absolute impact of schooling. Using a gross occupational categorization which pits cultivators against industrial workers, we find that the classroom still leads the workshop as a school of modernization in the ratio of 3:2. Using the stricter test which utilizes factory workers only, grouped by length of industrial experience, it turns out that every additional year in school produces three times as much increment in one's modernization score as does a year in the factory, that is, the ratio goes to 3:1. The school seems clearly to be the more efficient training ground for individual modernization. Nevertheless, we should keep in mind that the school has the pupil full time, and it produces no incidental by-products other than its pupils. By contrast, the main business of the factory is to manufacture goods, and the changes it brings about in men—not insubstantial, as we have seen—are produced at virtually zero marginal cost. These personality changes in men are therefore a kind of windfall profit to a society undergoing the modernization process. Indeed, on this basis we may quite legitimately reverse the thrust of the argument, no longer asking why the school does so much better than the factory, but rather demanding to know why the school, with its full time control over the pupil's formal learning, does not perform a lot *better* than it does relative to the factory.

Our experience with the factory enables us to answer the secondary question posed for this section. Since men generally enter the factory as more or less matured adults, the effects observed to follow upon work in it clearly are late socialization effects. Our results indicate that substantial changes can be made in a man's personality or character, at least in the sense of attitudes, values, and basic orientations, long after what are usually considered the most important formative years. The experience of factory work is, of course, not the only form which this late socialization takes. It may come in the form of travel or migration, by exposure to the media of mass communication, or through later life in the city for men who grew up in the countryside. We therefore combined our explanatory variables into two main sets, one representing *early* socialization experience—as in formal schooling—and the other reflecting *late* socialization experiences—as in one's adult occupation. The late socialization experiences staked out a very respectable place for themselves in the competition to account for the observed variance in individual modernization scores. In five countries the set of late socialization variables explained as much or more of the variance in modernization scores as did the combined early socialization variables, each set explaining between one-fourth and one-third of the variance.

In India the early socialization variables were decidedly more powerful—accounting for 52 percent as against 31 percent of the variance explained by the late socialization variables. But in absolute terms, the late experiences are still doing very well. All in all, we take this to be impressive evidence for the possibility of bringing about substantial and extensive changes in the post-adolescent personality as a result of socialization in adult roles.

3. *Are there any behavioral consequences arising from the attitudinal modernization of the individual? Do modern men act differently from the traditional man?*—Many people who hear of our research into individual modernization respond to it by acknowledging that we may have discovered what modern man *says*, but they are more interested in knowing what he *does*. This view overlooks the fact that taking a stand on a value question is also an action, and one which is often a very significant one for the respondent. Our critics' comment also tends implicitly to underestimate the importance of a climate of expressed opinion as an influence on the action of others. And it probably assumes too arbitrarily that men use speech mainly to mislead rather than to express their true intentions. Nevertheless, the question is a legitimate one, and we addressed ourselves to it in our research. Although this part of our analysis is least advanced, we can offer some tentative conclusions on the basis of preliminary analysis.

We have the definite impression that the men we delineate as modern not only *talk* differently, they *act* differently. To explore this relationship we constructed a scale of modernization based exclusively on additudinal questions, rigorously excluding those dealing with action rather than belief or feeling. This measure of attitudinal modernity we then related to the behavioral measures in our survey. In all six countries we found action intimately related to attitude. At any given educational level, the man who was rated as modern on the attitudinal measure was also more likely to have joined voluntary organizations, to receive news from newspapers every day, to have talked to or written to an official about some public issue, and to have discussed politics with his wife. In many cases the proportion who claimed to have taken those actions was twice and even three times greater among those at the top as compared with those at the bottom of the scale of attitudinal modernity.

The particular behaviors we cited above are all "self-reported." The question inevitably arises as to whether then we are not merely testing attitudinal consistency—or merely consistency in response—rather than any strict correspondence between modernity of *attitude* and modernity of *behavior.* The answer is partly given by considering the relation of attitudinal modernity to our several tests of information. These questions did not deal with "mere" attitudes, but obliged the respondent to prove objectively whether he really knew something. Quite consistently the men who were more modern on the attitude measures validated their status as modern men by more often correctly identifying a movie camera, naming the office held by Nehru, and locating the city of Moscow. Men with the same education but with unequal modernity scores performed very differently on these tests, with those more modern in attitude scoring high on the tests of information two or more times as often as those classified as traditional in attitude.

We conducted a further and more exact check on the extent to which self-reported behavior is fact rather than fantasy by comparing what men claimed to do with objective tests of their actual performance. For example, we asked everyone whether or not he could read. Individuals certainly might have been tempted to exaggerate their qualifications. But later in the interview we administered a simple literacy test, asking our respondents to read a few lines from local newspaper stories we had graded for difficulty. In most settings less than 1 percent of the men who had claimed they could read failed the literacy test. They proved objectively to have been accurately and honestly reporting their reading ability. Similarly, men who claimed to use the mass media regularly were—as they should have been—better able to correctly identify individuals and places figuring prominently in world news. In Nigeria, for example, among experienced workers of low education, the proportion who could correctly identify de Gaulle as the president of the French Republic was 57 percent among those who claimed to pay only modest attention to the mass media, 83 percent among those who asserted they listened or read more often, and 93 percent among those who claimed to read a newspaper or listen to the radio almost every day. Many additional tests of the internal consistency of affiliate and behavior measures were run, and the outcome was regularly consistent with the example given. Clearly, the men who claim to have the attributes we score as modern give a better account of themselves on objective tests of performance. We may conclude not only that modern is as modern does, but also that modern *does* as modern *speaks.*

4. *Is the consequence of the individual modernization inevitably personal disorganization and psychic strain; or can men go through this process of rapid sociocultural change without dele-*

terious consequences?—Few ideas have been more popular among the social philosophers of the nineteenth and twentieth centuries than the belief that industrialization is a kind of plague which disrupts social organization, destroys cultural cohesion, and uniformly produces personal demoralization and even disintegration. Much the same idea has been expressed by many anthropologists who fear—and often have witnessed—the destruction of indigenous cultures under the massive impact of their contact with the colossus represented by the European-based colonial empires. But neither the establishment of European industry in the nineteenth century, nor the culture crisis of small preliterate peoples overwhelmed by the tidal wave of colonial expansion may be adequate models for understanding the personal effects of industrialization and urbanization in developing nations.

To test the impact on personal adjustment resulting from contact with modernizing influences in our six developing countries, we administered the Psychosomatic Symptoms Test as part of our regular questionnaire. This test is widely acknowledged to be the best available instrument for cross-cultural assessment of psychic stress. Using groups carefully matched on all other variables, we successively tested the effect of education, migration from the countryside to the city, factory employment, urban residence, and contact with the mass media as these modernizing experiences might affect scores on the Psychosomatic Symptoms Test. No one of these presumably deleterious influences consistently produced statistically significant evidence of psychic stress as judged by the test. Those who moved to the city as against those who continued in the village, those with many years as compared to those with few years of experience in the factory, those with much contact with the mass media as against those with little exposure to radio, newspaper, and movies, show about the same number of psychosomatic symptoms.

In each of six countries, we tested fourteen different matched groups, comparing those who migrated with those who did not; men with more years in the factory with those with fewer, etc. Because some of these matches did not apply in certain countries, we were left with seventy-four more or less independent tests of the proposition that being more exposed to the experiences identified with the process of modernization produces more psychosomatic symptoms. Disregarding the size of the difference and considering only the sign of the correlation between exposure to modernization and psychosomatic symptoms as (+) or (–), it turns out that in thirty-four instances the results are in accord with the theory that modernization is psychologically upsetting, but in forty other matches the results are opposed to the theory.

Very few of the differences in either direction, furthermore, were statistically significant. Indeed, the frequency of such statistically significant correlations was about what you would expect by chance. Of these significant differences, furthermore, only two supported the hypothesis while two contradicted it. This again suggests that only chance is at work here. We must conclude, therefore, that the theory which identifies contact with modernizing institutions and geographical and social mobility as certainly deleterious to psychic adjustment is not supported by the evidence. Indeed, it is cast in serious doubt. Whatever is producing the symptoms—and the test does everywhere yield a wide range of scores—it is something other than differential contact with the sources of modernization which is responsible.

Life does exact its toll. Those who have been long in the city and in industry but who have failed to rise in skill and earnings are somewhat more distressed. But this outcome can hardly be charged to the deleterious effects of contact with the modern world. Perhaps if we had studied the unemployed who came to the city with high hopes but failed to find work, we might have found them to have more psychosomatic symptoms. If we were faced with this finding, however, it would still be questionable whether the observed condition should be attributed to the effects of modernization. The fault would seem to lie equally in the inability of traditional agriculture to provide men with economic sustenance sufficient to hold them on the land.

We conclude, then, that modernizing institutions, per se, do not lead to greater psychic stress. We leave open the question whether the process of societal modernization in general increases social disorganization and then increases psychic tension for those experiencing such disorganization. But we are quite ready to affirm that extensive contact with the institutions introduced by modernization—such as the school, the city, the factory, and the mass media—is not in itself conducive to greater psychic stress.

Men change their societies. But the new social structures they have devised may in turn shape the men who live within the new social order. The idea that social structures influence the personal qualities of those who participate in them is, of course, as old as social science and may be found in the writings of the earliest social philosophers. Its most dramatic expression, relevant to us, was in the work of Marx, who enunciated the principle that men's consciousness is merely a reflection of their relation to the system of ownership of the means of production. The rigidity of Marx's determinism, and the counterdetermination of many people to preserve an image of man's spiritual independence and of the personal autonomy and integrity of the individual, generated profound resistance to these ideas. The idea that ownership or nonownership of the means of production determines consciousness is today not very compelling. To focus on ownership, however, is to concentrate on the impact of macrostructural forces in shaping men's attitudes and values at the expense of studying the significance of microstructural factors. Yet it may be that these microstructural features, such as are embedded in the locale and the nature of work, are prime sources of influences on men's attitudes and behavior.

In reviewing the results of our research on modernization, one must be struck by the exceptional stability with which variables such as education, factory experience, and urbanism maintain the absolute and relative strength of their impact on individual modernization despite the great variation in the culture of the men undergoing the experience and in the levels of development characterizing the countries in which they live. This is not to deny the ability of the macrostructural elements of the social order to exert a determining influence on men's life condition and their response to it. But such macrostructural forces can account for only one part of the variance in individual social behavior, a part whose relative weight we have not yet measured with the required precision. When we attain that precision we may find some confirmation of popular theories, but we are also certain to discover some of them to be contradicted by the data—just as we have in our study of microstructural factors. The resolution of the competition between these two theoretical perspectives cannot be attained by rhetoric. It requires systematic measurement and the confrontation of facts however far they are marshalled in the service of ideas. The facts *we* have gathered leave *us* in no doubt that microstructural forces have great power to shape attitudes, values, and behavior in regular ways at standard or constant rates within a wide variety of macrostructural settings.

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5

MULTIETHNIC STUDIES OF PSYCHOPATHOLOGY AND NORMALITY IN HAWAII[1]

MARTIN M. KATZ, PH.D.
KENNETH O. SANBORN, PH.D.

Much of the following research was carried out in association with the East-West Center in Hawaii. The program on culture and mental health at the center received NIMH support from 1967 to 1972 and resulted in a wide variety of research observations of importance to Asian and American mental health efforts.

Psychosis, the most extreme form of mental disorder, is expressed through social behavior, through the expression of emotions, through the manner in which human beings perceive the outer world, and how they think about it. When someone is judged to be

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[1] The research on multiethnic variations in Hawaii was supported through an NIMH contract and was initiated prior to 1966. Although the work had been in progress for several years, it received significant support in 1968 through the senior author's participation as a resident research fellow in the East-West Center, Social Science Research Institute Program on "Culture and Mental Health in Asia and the Pacific." It was during that year that we were able to consolidate much of the prior research on ethnic variations in psychopathology and to initiate the community studies of normal social behavior and symptom patterns in Hawaii. As one of the many projects significantly helped by the NIMH-grant-sponsored "Culture and Mental Health in Asia Program," the background and nature of that unique and farsighted attempt to link Asian and American research in a common effort to understand the role of cultural factors in mental health and mental disorder are worthwhile describing.

Dr. William Lebra, formerly director of the Social Science Research Institute, University of Hawaii, initiated the program in 1967 following consultation with many experts on Asian culture, notably Dr. William Caudill at NIMH. Its major aims were to provide an exchange of views and information between Asian and American scholars in the field, "to develop new theoretical and methodological insights into problems of mental health," and, in accord with the overall goals of the East-West Center, to stimulate collaborative research of mutual interest to scholars and scientists in both areas of the world. The initial plan called for providing fellowships to approximately 10 senior and promising young investigators from various countries in Asia and from America to allow them to spend a year in residence at the Social Science Research Institute. The intent was to draw from disciplinary fields relevant to mental health research—e.g., psychiatry, psychology, anthropology, and sociology—and to provide a setting in which scientists "psychotic," we identify or diagnose it not through any tests of biological functioning, but by the outer behavioral manifestations of this inner disturbance: certain emotions like anxiety and depression are exaggerated beyond normal limits; or the capacity to distinguish fantasy from reality appears to be weakening; or there may be highly defined disturbances in thought, false ideas we identify as delusions. There are obviously many ways to express severe inner psychological disturbance—we know that *how* it gets expressed in any one person is the result of many varied psychological, biological, and cultural forces.

Since it is not likely that psychosis is "caused" by any one of these major influences, most clinical research on the mental disorders proceeds as if it is the outgrowth of many forces: culture, specific environmental stress, the personality of the individual, his constitution, his biology, his capacity to withstand stress, his psychological history and development. Of all these factors, it would be fair to say that we know least about the contribution of culture to the development and expression of psychosis. There are a number of practical reasons why this is so. To study such factors, we have to, for example, be in a position to compare the mentally ill in widely separated geographic settings. We also require methods for studying behavior that are both relevant to, and that can be administered across, these cultures. Such methods have only recently been developed and most are relatively untried in cross-cultural research situations.

In the past, most such research has been carried out by anthropologists or culturally oriented psychiatrists and psychologists who relied very heavily on observation and on interview techniques. Most of the data we have are, therefore, impressionistic in quality. More recently, some of the newer devices for the systematic recording of symptoms and social behavior, and for the quantification of observational data of this type have become available for application to the problem. These techniques were not designed for studies of "cultural influence" but lend themselves to systematic study of abnormal behavior across cultures.

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could engage in scholarly activity, conduct seminars, write professional papers and books, interact on critical research issues, and plan collaborative research. A major aim was to provide an atmosphere of mutual stimulation and exchange and sufficient time for representatives of different cultures and diverse disciplines to become sufficiently familiar with each other's frames of reference and interests so that future productive work might be planned and eventually carried out.

The authors wish to acknowledge the participation of Howard Gudeman, Ph.D., Chief, Psychological Services, in the early phases of the research, and Dr. Aldon Post, Superintendent, and their staff at the Hawaii State Hospital for their cooperation, professional participation and sturdy support throughout the conduct of this program.

With these developments, that is, both the increase in interest in the past few years in appraising the role of culture, and the availability of certain methods, it becomes possible to reapproach some of the critical questions in this area and to expect to obtain more definitive answers. It was in this spirit and in relation to some new findings on the variations of schizophrenia (Katz 1967; Katz, Cole, and Lowery 1964) that we began some years back to study the ways in which people from very different cultural backgrounds express psychopathology.

The findings related, for example, in some unusual ways to earlier differences that had been uncovered in an intensive investigation of the behavior and symptoms of Hawaii-Japanese and Hawaii-Filipino paranoid schizophrenics (Enright and Jaeckel 1963). The Japanese presented a more contained, restrained psychosis marked by suspiciousness and seclusion; the Filipino, a more manic, aggressive form of what appeared to be the same underlying condition. In a large group of mainland schizophrenics studied in the NIMH Collaborative Studies of drugs and schizophrenia (NIMH 1964), we had uncovered a similar variety of forms within the category of paranoid schizophrenia, and the fact that certain of these types were predominant in certain ethnic groups, we found intriguing.

It was intended, therefore, in what later became a very extensive study of psychopathology and normality in Hawaii, to compare Japanese, Caucasian, Hawaiians, Filipinos and Portuguese, to examine the influence of ethnicity on the causation and on the shaping of symptoms and behavior, and to see whether certain improved methods which had been developed in the field of psychopharmacology could be applied to achieving more definitive answers on these cross-cultural questions.

If one is interested in the ways in which psychopathology is manifested in different cultural groups, then it is easy to see why Hawaii provides a very convenient laboratory. For one thing, the Islands have representatives of such disparate cultural groups as the Western, the Oriental, the Malay, and the Polynesian. Further, in this particular setting, they all speak a common language. Finally, where severe functional mental disorders are the focus of interest, we note that there is only one State hospital in the Islands and only one general hospital to which most of the severely disturbed are referred. Although we identify these aspects of the situation in Hawaii as advantages for cross-cultural research, we are also aware that the relatively uniform environmental conditions also contribute to a somewhat rapid assimilation of these groups and, thus, contribute to the blurring of lines among them.

The primary aim in this research, as a comparative study in culture and psychopathology, is the development of valid, objective pictures of the psychopathology of particular ethnic groups. There was interest in (1) whether various ethnic groups—in this case, Hawaii-Japanese, Hawaii-Filipinos, Hawaii-Caucasians, and Part-Hawaiians—express psychosis differently; (2) whether these differences are consistent with those found in previous studies or consistent with what might be expected from an understanding of normal personality in these ethnic groups; and (3) for important theoretical reasons, whether there are ways in which all these groups of functional psychotics are the same (Katz, Sanborn, and Gudeman 1969*a* and 1969*b*).

To determine whether ethnic background influences psychopathology, it was clear that we first had to describe and to measure in reliable fashion the nature of each group's behavior and symptoms, and to work towards the development of *valid "objective" pictures of the nature of their psychoses.* This aim turned out to require a much more complicated approach than we initially had any reason to expect. In our studies we were going to rely almost exclusively on observational procedures, but we were going to extend this approach so that we could obtain several perspectives on the nature of the patient's behavior, e.g., using both professionals and lay people, and studying the patient in more than one setting—in the hospital and in the community. We introduced a number of relatively new methods into this investigational approach.

If one wishes to develop "valid, quantitative pictures" of the behavior of patients through the observational method he has to cut through a number of natural perceptual biases to arrive at an "objective picture" of psychopathology. The overall assessment of a patient that one gets at any point in time is influenced by such factors as the following:

1. *The nature and background of the interviewer or diagnostician himself.* In clinical studies, it is always difficult to estimate the influence of the observer himself on his observations and judgments of patients, e.g., his experience, age, national background, etc. The complications these factors introduce are even more exaggerated in cross-ethnic and in cross-clinical studies (Katz, Cole, and Lowery 1969).

2. *The nature of the method for obtaining information*, i.e., whether it be a "structured research" or the more conventional "unstructured clinical interview." The difference in what actually gets expressed by the patient, as a function of the type of interview, was clearly demonstrated in a study we carried out a couple of years ago using large groups of experienced clinical

psychologists. Although only single case studies were involved, it was clear that the clinically oriented unstructured interviews were capable of bringing out more emotionality and more psychopathology than the standard or structured research interview.

3. *The setting* in which the research is carried out, i.e., where the patient is studied. Our early comparison in the Hawaii study of Japanese vs. mainland schizophrenics exemplified that problem. The Japanese, e.g., looked more obstreperous and excited than the Caucasians in the community. The pictures these two groups presented were almost reversed following their entrance into the hospital (Katz, Sanborn, and Gudeman 1969*a*).

These methodologic influences have to be controlled or their extent estimated in order to assess directly the actual nature of the differences among ethnic groups. We tried to overcome some of these obstacles through application of the following procedures:

1. Use of a clinical interview with a standard set of questions across all ethnic groups, e.g., Mental Status Schedule (Spitzer et al. 1967).
2. Use of a standard set of scales for rating psychiatric symptoms, e.g., IMPS (Lorr et al. 1962).
3. Investigation of psychopathology in more than one setting, i.e., measuring social behavior and symptoms in the hospital and in the community through the use of a standard method, e.g., KAS (Katz and Lyerly 1963).

Further controls relevant to cross-cultural studies were also instituted, e.g., controls for social class, generation, etc. Finally, after becoming convinced that "normal" baselines were essential to answer the critical questions about the influence of culture, we introduced a second major study. This investigation was aimed at deriving baselines of social behavior and symptoms for each of the ethnic groups, and required the administration of one of the descriptive methods–the adjustment scales–to representative "normal" samples of each of the ethnic groups in the community. With this rather unique facet for a cross-cultural study, we would be able to consider the problem of how the community itself defines mental disorder.

Our patient sample of 300 consisted of all admissions from selected ethnic groups between the ages of 20 to 50, for severe functional psychotic disorders to Hawaii State Hospital over a period of 2 years. Our "normal" sample was drawn from a representative sample of 1300 households in Hawaii and provided subsamples for all of the ethnic groups included in the patient group.

Major Findings

The results that have emerged from this series of studies are the following:

1. Patients from different ethnic groups do manifest psychosis differently when judged by a varied group of experienced clinicians in the hospital setting. The contrast was most marked between the Hawaii-Japanese and the Hawaii-Caucasian patients, but there were variations in emotional and behavioral patterns among all groups.
2. The differences are most pronounced in the expression of emotional states, i.e., hostility, anxiety, depression, and apathy.
3. The Hawaii-Caucasian psychotic is viewed as significantly more "emotional" in quality; the Hawaii-Japanese, more schizoid, more withdrawn and retarded.
4. The Japanese and the Filipinos differ primarily on a factor called "disorganized hyperactivity"–one that indicated that the Filipino psychotic projects a significantly more excited, hyperactive, manic quality.The findings would tend to confirm previous findings concerning these two groups.
5. There is less contrast among the ethnic groups in the cognitive and perceptual aspects of the psychosis: all have similar levels of disturbance in these spheres.

On the Analysis of "Normal" and "Socially Deviant" Behavior in the Community

The subsequent study of "normal behavior" in the community provided a baseline for each of the ethnic groups. These baselines could be used as a control and, thus, markedly increase the sensitivity of the relatives' ratings in the description of the patient sample. It was then possible to return to the community data on the patients and to reanalyze it.

Techniques which involve analysis of the patient's behavior in the community by controlling for specific ethnic norms (a) reveal the ethnic community's own definition of mental disorder, i.e., how they view the nature of the hospitalized patients behavioral and emotional conditions; and (b) provide a profile for each patient which describes his specific "deviance" pattern.

This measure, which we call "social deviance," when compared across ethnic groups, indicates wide differences in the way the various communities view and judge emotionally disturbed behavior.

The Hawaii-Japanese psychotic, for example, is viewed as highly suspicious and anxious—the emotional side of this picture contrasting markedly with the clinician's appraisals. The Caucasian and the Portuguese community portraits specifically are seen, however, more in accord with the anxious, depressed quality identified by the clinicians.

Finally, using this approach to retest the specific hypothesis concerning the nature of the Japanese and Filipino psychoses, the Japanese and Filipino are viewed by their own communities as highly paranoid—more so than the other groups—but the distinction is clearer that the Japanese paranoia is of a more fearful, agitated type, and the Filipino is a more belligerent, "helpless" type. These characteristics fill out somewhat the picture provided by the clinical ratings. They, also, are in accord with earlier findings and provide a more complete picture of the contrasting features.

What are the theoretical and clinical implications of these findings?

On Culture and Psychopathology

If we were to review the way clinicians observe and judge psychopathology, we would say that the main impact of culture is on the manner in which *emotions and behavior* are expressed—less on the "core" psychosis, e.g., on the perception and assessment of reality—the nature of the thought disorder.

In isolating the factor of ethnicity, the findings clearly indicate that the ways in which psychopathology is expressed vary as a function of cultural background. Further, there is support for a theory that psychosis as expressed through behavior, is an exaggeration of the normal pattern; that observation would hold particularly for two of the groups, the Hawaii-Portuguese and Hawaii-Filipino samples.

Because of discrepancies in the way the Japanese are perceived by professionals and by their own ethnic community, a similar conclusion that the normal emotional and social behavior pattern is exaggerated in psychosis, cannot be drawn about that group. We make note of the fact, however, that Caucasian clinicians may have difficulty in reading and interpreting the emotions of the Japanese, so we are less comfortable about their description of the psychotic pattern.

We confront again a critical problem inherent in this investigational approach. The ways in which our observers perceive behavior are also influenced by their own ethnic background. The influence of culture is, therefore, felt in two ways in such research—its impact on the behavior of the various groups and on the way our observers perceive behavior.

We are currently attempting through experiment to further analyze the extent of the influence of culture on perception—to study how the various ethnic groups perceive the behavior of others in that community; to investigate the more general problem of how behavior and perception interrelate in multiethnic communities.

It is clear that while multiethnic situations are useful models for cross-cultural research, they are, also, unique in their own right. As part of one community, each ethnic group's history and patterns of behavior begin to blend with those of the other group's, and the difficulties of characterizing its uniqueness increases with time.

Even without complete understanding of how these groups relate and perceive each other, we can already see the clinical implications of a situation in which there is a discrepancy between the views of psychosis held by the professionals and those by particular ethnic groups.

Since both the community and the professionals contribute to identifying mental disorder, this discrepancy influences in unknown ways how we diagnose mental disorder and subsequently treat it in a given ethnic group. There are different qualities to the psychosis when one looks at it in the community, and then in the hospital. The problems inherent in cross-perception among ethnic groups are magnified in multiethnic communities like Hawaii and in other major urban centers, where the professionals are likely to be very different in background than the patients they treat. The results of this work, we feel, will contribute to clarifying these issues by describing the "norms of social behavior and symptomatology" for each of the various groups, as seen through the eyes of the ethnic community, by the professionals, and by providing data on the kinds of patterns of mental disorder typical of these groups.

Cross-cultural and multiethnic studies have in common, then, the capacity to extend our understanding of the role of culture in the development of psychopathology. They also provide us with more refined information for diagnosing and consequently for treating mental disorders, thus contributing to the important task of sensitizing those who work in the mental health field to the complexities of conducting clinical work in the multiethnic community.

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6

THE U.S.-U.K. CROSS-NATIONAL PROJECT

PROFESSIONAL STAFF OF THE CROSS-NATIONAL PROJECT[1]

> *The following bi-national research project was not only supported by the NIMH but was a direct outgrowth of the work of the Biometry Branch. A comparative study of first admission rates to mental hospitals in the United States and England and Wales highlighted the large differences that have been noted and commented on over the years between the rates of first admissions for major affective disorders and schizophrenia. Schizophrenia predominated in the United States, and manic depressive disorders in England and Wales. The differences were so striking that they demanded an explanation to ascertain whether they were genuine or merely the product of the differences in diagnostic criteria. Methods of investigating the question were developed and resulted in this research project, the results of which have important implications for international communication in psychiatry and the development of mental health services.*

The problems of mental illness are universal. Wherever found, they may produce personal suffering, disruption of families, inefficiency at work, and many other deleterious effects on individual and community life. In the United States, as in other industrialised countries, the burden of mental illness is especially great both because the economic well-being of the country depends heavily on the welfare of all its citizens and because of the increased stress coming with urbanization, immigration, and high rate of social change and geographic mobility.

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In each country, large numbers of administrators and scientists work towards finding the cause and cure of mental disorder. It is clearly essential that researchers and clinicians in these different countries should communicate with each other, draw on each other's experience, and by this reciprocation speed the improvement of mental health care.

The need for cross-national communication about the care of mental health problems is not only based on humane but also on economic considerations. Expensive mistakes in research and development made by one country can be avoided by others. An advance in theory, laboriously achieved by one heavily funded research group, can immediately stimulate the work of other researchers. A clinical discovery, perhaps made at great cost at one academic institution, can be applied to the benefit of all patients. Large-scale systems for the delivery of mental health care set up in one country can be examined and analyzed by other countries as an experimental program at no cost to themselves and its virtues incorporated and shortcomings omitted.

No one would suggest that mental health problems or their nature and treatment are universally identical. International differences are as likely to arise as a result of cultural, genetic, and environmental peculiarities as individual differences between the citizens of the same country. Findings in one country have to be replicated in other countries, but the confirmation or refutation of a finding is likely to be less expensive than the original work. Similarly, management programs might need adaptation when crossing cultural boundaries. Nevertheless, the benefits of cross-national communication could greatly outweigh the precautions necessary to take into account cross-national variation.

Even the communication of cross-national differences in mental disorder can have important implications. When conditions such as drug addiction or violence are noted to increase and spread in one country, authorities in other countries may take warning to prepare for a possible increase within their own domain. A specific condition may be found to occur frequently only within one geographic region and the special sociocultural characteristics of that region may provide a clue as to the cause of that condition. Still other disorders may occur strikingly infrequently in one country, suggesting that there is either some kind of endogenous resistance to the disorder, or that a particularly effective method of preventing or treating that disorder exists which might be worthwhile adopting elsewhere.

The argument for improving communication between the mental health professions of different countries is even more cogent in the case of the United States and the United Kingdom. These countries face similar challenges of ameliorating the debilitating effects on individuals of a demanding and changing society; and of providing care for mental sufferers by means which, in the face of sophisticated and high expectation of health care, are yet realistically geared to the limitations which now exist in economic and labor resources.

Both countries devote considerable funds and effort to grappling with these problems, but solutions are so far only partial and tentative. Sometimes the solutions have first been made by one country and later adopted by the other. Often different solutions are attempted in the two countries not only because of cross-national differences in the perception of a problem, but also because of the different emphasis arising from traditions in clinical practice, and Government policy. Where an accurate comparison of these different solutions is possible, a rational decision can be made as to whether one solution is more effective than the other in a given country, or whether each is appropriate only for the country in which it was developed. In all these considerations meaningful transatlantic communication is essential.

Unfortunately, relatively little international exchange of information takes place today between groups of mental health professionals. This is understandably true when communication is hindered by a foreign language barrier. However, the most pernicious of errors in communication occurs when people speak to each other in the same language but attach idiosyncratic meanings to their words; and this kind of error is observed only too frequently in the use of technical language by psychiatrists and allied professionals in the United States and the United Kingdom: "two countries divided by a common language."

Aims and Operations of the Cross-National Project

The basis for the Cross-National Project was the striking contrast between the United States and the United Kingdom in the frequencies of various psychiatric disorders reported among admissions to public mental hospitals (Kramer 1969). The mandate given to the project was to specify whether these cross-national differences reflected differences in the patients or in the psychiatric language used to describe and classify patients; to suggest ways of reconciling differences in psychiatric language; and to demonstrate the value of applying consistent assessment techniques to samples of patients in both countries.

The project set about fulfilling its mandate by means of the following three strategies:

1. Teams were appointed, one in New York and one in London, each composed of psychiatrists, psychologists, social scientists, and statisticians, and each agreeing to use exactly the same methods for assessing patients in the two countries. These teams personally examined large numbers of psychiatric patients in New York and London. The same patients underwent their routine examination by the local hospital staff. The project and hospital examinations and records were kept completely independent of each other. Special analyses of the project assessments proved that the project was using the same standards to describe and classify patients in both countries so that these consistent standards could be used to indicate which patients had a similar clinical condition in the two countries. Thus this strategy allowed an analysis of whether patients with similar clinical conditions were being described in similar or dissimilar terms by the hospital staffs in the two countries.

The project staff achieved consistency in its methods of assessment and modes of classification by carefully following a "structured interview" protocol which detailed the topics to be covered with each patient, indicated ways of phrasing questions to be put to the patient, and defined the responses of the patient which were to be rated. Project diagnoses were made in terms of a uniform classification system (the International Classification of Diseases) whose various categories were each operationally defined. In addition, the responses of the patient were coded and not only reviewed for the purpose of making a clinical diagnosis, but were also fed into a computer programmed to provide objective diagnoses and visual profiles of the patients' symptoms.

This first strategy permitted personal and intensive examination of large numbers of patients who were undergoing routine hospital assessment. However, for practical reasons the patients examined all came from hospitals in New York or London, so that the results did not refer to the remainder of the two countries. Furthermore, since hospital records are not always very detailed, little was learned about how the hospital psychiatrists perceived the patients beyond the diagnosis he recorded. These limitations were overcome in the second strategy described below.

2. Videotapes were made of interviews with selected psychiatric patients. With the consent of the patients concerned, the

interviews were shown to psychiatrists in centers throughout the United States and the United Kingdom. These psychiatrists came from a wide variety of professional backgrounds—some from private practice, some from teaching institutes, and some from State hospitals. Each psychiatrist, after watching a taped interview, was asked to choose an appropriate diagnosis from the International Classification of Diseases; to pick freely from a list of technical psychiatric terms those that applied to that patient (when such terms were not supplied with definitions); and to similarly pick appropriate descriptions from a list of descriptive terms, each defined in straightforward language. This strategy thus allowed access to numerous psychiatrists from various parts of each country, and a detailed comparison of the descriptions they gave on the same patients. The comparison thus covered diagnosis, technical terms, and defined terms. However, in contrast to the first strategy, the videotape exercises were necessarily limited to a few patients, and the circumstances were somewhat artificial in that the psychiatrists who viewed the tapes could not personally examine the patients and were limited to the information given in the taped interview. The first and second strategies were therefore complementary.

3. For the purpose of studying the historical development of cross-national differences in diagnosis, case records were analyzed of patients who had been hospitalized in previous decades, as far back as 1932. The patients themselves could not be examined because many of them had, in the meantime died, moved, or recovered from their disorders.

The above section is only a partial account of the aims, methods and studies of the Cross-National Project. For example, the account does not include reference to methods of assessing cross-national differences in the progress made by patients during treatment. The work carried out by the project during the years 1965 to 1972 included the personal examination of well over 1,000 patients, and the collection of almost 1,000 sets of ratings from psychiatrists who viewed the videotapes. The patients concerned were spread over the age range from 20 to over 90 years and were suffering from a very wide range of psychiatric disorders. The results of this work have been published in over 40 papers in professional journals or chapters in books, and in a monograph devoted entirely to project work (see appended bibliography). At the present the project is beginning a survey of the health problems and service utilization of elderly subjects living in the community in New York and London. Here we will give a very brief summary of the results of completed work, insofar as these results illustrate the importance of such work to the advance of mental health care in this country.

Cross-National Differences in Diagnosis and Description of Psychiatric Patients

The results of studies by the Cross-National Project have shown unequivocally that even where American and British psychiatrists use the same psychiatric language, they often mean quite different things. For example, the American psychiatrist uses the diagnostic term schizophrenia to include a wide variety of types of patient, while the British psychiatrist uses this diagnosis to refer to a very limited number of types of patient. Conversely, the British psychiatrist uses the diagnosis of a depressive disorder relatively freely, while the American psychiatrist applies this diagnosis sparingly. Even within the United States, similar contrasts in the use of diagnostic language are found. For instance, psychiatrists in the eastern seaboard States are more inclusive in their concept of schizophrenia than are those in some other regions of the Nation.

One consequence of the transatlantic differences in the meaning of diagnostic labels is that when American and British psychiatrists examine the same group of patients, the Americans will report many more cases of schizophrenia than do the British; while the latter will report more cases of depressive disorder. Indeed, the project staff found that very similar kinds of patients were being admitted to public mental hospitals in New York and London, yet the hospital psychiatrists in the two cities reported more schizophrenics and fewer depressives in New York than in London. It can now readily be seen that the transatlantic differential based on hospital diagnoses is an artifact of differences in the meaning attached to the diagnostic labels. Prior to this insight much costly effort could have been wasted in seeking a biological or social cause for the higher admission rate of schizophrenia reported in New York.

Many undesirable consequences flow from the distortions in transatlantic communication reported above. To emphasise this problem from the American viewpoint one might cite the following examples. When American psychiatrists scrutinize the British professional journals for new and better treatments of depressive disorders, they may find themselves uncertain about which of their patients should be given a recommended treatment since the American and British concepts of depression are different. When an American scientist hears of a biological abnormality said by a British colleague to be characteristic of schizophrenia, he does not know if the statement applies only to the limited variety of patients called schizophrenic in the United Kingdom or to the wider variety of patients he has seen diagnosed as schizophrenic in the United States. Both the clinician and the scientist are deprived of the full benefit of their colleagues' work by a gap in their communication.

Apart from diagnosis, transatlantic differences were also found in other terms that psychiatrists use to describe their patients. Technical terms (such as delusions, hallucinations, or thought disorder) were more readily applied to a patient's clinical picture by American than by British psychiatrists, who, in turn, were more cautious in asserting that a given patient showed such symptoms. In other words, the same patient would be described as having more abnormal symptoms by the American than by the British psychiatrists. This tendency was particularly marked with regard to the symptoms which strongly suggest the diagnosis of schizophrenia. Even when each descriptive term was carefully defined in straightforward language, the tendency for American psychiatrists to see more pathology in a patient than do the British was still evident. Thus resorting to descriptions rather than diagnoses does not provide a simple solution to the problem of transatlantic communication.

Other work of the Cross-National Project (also directed at specifying the differences between American and British psychiatrists in their diagnostic and clinical practices), but which will not be detailed here, included analysis of the diagnostic process; the effect of such factors as race and sex in prejudicing diagnosis; mathematical approaches for distinguishing between different psychiatric disorders and for defining the different areas of psychopathology; the value of multiple diagnoses; prediction of recovery or deterioration on the basis of diagnosis and symptoms; and the way in which psychiatrists use their perception of the patients' problems to select treatment. Studies on the elderly patient suggest that some American psychiatrists may be inclined to overlook the diagnosis of depressive disorder in elderly subjects with the possible consequence that the depression is sometimes not appropriately treated.

Suggestions for Achieving an International Language of Psychiatry

The techniques employed by the project staff for examining patients provided the clearest evidence that diagnosis and description of a patient's psychopathology can be applied according to the same standards on both sides of the Atlantic. In particular, the project diagnoses of schizophrenia, depressive disorder, and senile dementia were reliable and consistent. The clinical picture of the average patient diagnosed schizophrenic by the project, looked virtually the same in the two countries, and a similar transatlantic consistency was evident in the other diagnostic groups. The terms used by the project to describe a patient's symptoms were also found to be highly reliable.

The project was able to develop reliable diagnoses and descriptions of patients because all project members underwent the same training, asked more or less the same questions of all patients, followed the same definitions of descriptive terms, and made diagnoses on the basis of the guidelines laid down for the International Classification of Diseases. This demonstrates at least some of the criteria for achieving an international language of psychiatry.

Turning to the current status of communication between clinical psychiatrists in the two countries, a further examination of the project's findings shows that disagreements between American and British psychiatrists about diagnosis were mainly limited to certain kinds of patients. On other kinds of patients there was good agreement between the two countries. For example, there was general agreement on the diagnosis of schizophrenia in patients who were incoherent, showed little emotion, or described hearing imaginary voices whose commands the patient felt obliged to obey. What seems at first to be a morass of transatlantic diagnostic disagreements, on closer examination reveals large islands of agreement. Analysis of data is now proceeding to define the groups of patients whose diagnosis seems universally accepted, in order that psychiatrists can communicate at least about such cases.

Hopeful signs for improving transatlantic communication in describing a patient's symptoms can also be found. Although the American psychiatrists disagreed with their British colleagues about the number and severity of a patient's symptoms, there was good agreement on the nature of the patient's main symptoms. In other words, the Americans might describe a patient as "very" depressed and suspicious and incoherent, where the British might attach only the adverb "mildly" to that patient's symptoms; but both American and British psychiatrists would agree that that patient was more depressed than suspicious and that the incoherence was relatively less severe than either of the former symptoms. This form of agreement is fairly complex but can be used as the basis for a classification of patients which would build on the existing transatlantic consensus.

It is unlikely that any of the suggestions mentioned above for improving transatlantic communication could be implemented without considerable effort on the part of those responsible for training psychiatrists. Several studies and analyses carried out by the Cross-National Project point to the powerful effect of training and tradition in creating or reducing differences between psychiatrists in the meaning of their psychiatric language. Indeed, one study showed that several decades ago the American and British psychiatrists had very similar concepts of schizophrenia, but that differences have emerged over the years largely as a reflection of different traditions in teaching psychiatry, sometimes due to the influence of an outstanding teacher. What teachers could put asunder they can also mend.

The efforts of this research group have not been limited to specifying cross-national differences in psychiatric practice and to suggesting and demonstrating ways of resolving those differences. Team members have also devoted time to lecturing about the classification of psychiatric disorders, to teaching medical students and psychiatric residents how to examine patients methodically, and to training other research groups in structured interview techniques. These additional activities are also aimed at making a contribution to the fostering of an international language of psychiatry.

The current program of the Cross-National Project involves a survey, in New York and London, of the psychiatric, social, and medical health needs and service utilization of elderly subjects living in the community. A major new challenge in this survey is to develop internationally consistent methods of distinguishing between the normal and abnormal effects of aging, and of classifying health needs of the aged. These methods will allow a comparison of the delivery and effectiveness of health services in the two countries. Such a comparison should provide timely information for the planners in this country who must make far-reaching decisions on the provision of health insurance schemes and of community services for the elderly population.

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PSYCHOTHERAPEUTIC DRUG TRIALS AMONG ENGLISH GENERAL PRACTITIONERS

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International resources of interest to NIMH vary widely, and include a unique organization of over 400 general practitioners in Great Britain. This group carries out trials of psychoactive drugs in a manner which closely approximates the way such drugs are prescribed by general practitioners of medicine.

It has recently been estimated that psychotherapeutic drugs accounted for 17 percent of the total of 1.3 billion prescriptions filled in U.S. drug stores in 1970. These 214 million prescriptions included mood-changing drugs from six major therapeutic classes: minor tranquilizers (38.8 percent), hypnotics (17.5 percent), stimulants (13.2 percent), sedatives (11.1 percent), major tranquilizers (10.2 percent), and antidepressants (9.2 percent).

While most of us probably associate the prescribing of this type of medication with psychiatrists, it is illuminating to learn from Drs. Mellinger, Cissin, Balter, and their colleagues, that psychiatrists and neurologists account for only 40 percent of the prescriptions written for antipsychotic medications (major tranquilizers), 30 percent of the prescriptions for antidepressants, and substantially less of the prescriptions for drugs from the other therapeutic classes. Interestingly, it is the general practitioners and internists who prescribe the majority of medications that we associate with psychiatric disorders. Further, only about half of these prescriptions were actually written for people who are usually considered to have a "mental" disorder (such as schizophrenia, anxiety reaction, psychoneurotic disorder or depressive reaction). The remaining psychotherapeutic medications were prescribed for physical and/or psychosomatic disorders such as ulcers, hypertension, asthma, premenstrual tension, allergies, senility, and so on. Thus, while most psychotherapeutic drugs are being prescribed by nonpsychiatrists for nonpsychiatric disorders, most studies of psychotherapeutic drug efficacy have been conducted by psychiatrists treating patients with a diagnosed mental disorder. Moreover, these studies have typically been conducted within an institutional setting such as a hospital or an outpatient clinic. A high premium has been given to research convenience, perhaps at the price of research relevance.

Since results from one type of patient sample treated in one type of setting cannot necessarily be generalized to other patients treated in a different setting, it becomes important to ask (and answer) How likely are these differences to influence outcome? In many areas of medicine, drugs have a very specific and predictable effect. We can be quite sanguine about the treatment of pneumococcal pneumonia with penicillin or the treatment of cardiac arrhythmias with quinidine, regardless of the setting. Unfortunately, the result of treating a patient with a standard dose of a psychotherapeutic drug is much more variable than it is to the treatments offered in most other areas of clinical medicine.

Thus, it is particularly important to learn how effective psychotherapeutic drugs are in helping patients being treated by family physicians in private practices. This concern is further heightened by the results of a series of studies conducted by Dr. Karl Rickels, a psychiatrist at the University of Pennsylvania. He found that the same dose of medication produced quite different results in similar kinds of patients being treated for neurotic anxiety in a general medical practice setting, as contrasted with an outpatient psychiatric clinic setting.

For this reason, this need to evaluate psychotherapeutic drugs within the actual context in which they are given, the Psychopharmacology Research Branch of the National Institute of Mental Health supported a request for funds from David Wheatley, M.D., a British internist who organized and coordinates the activities of the General Practitioner Research Group. This group was founded in 1960 and has grown from about 40 members to a current network of about 400 practitioners who are situated in all parts of the British Isles. While this network evaluates other drugs than those of the psychotherapeutic type, Dr. Wheatley has indicated that "research into the use of psychotropic drugs in general practice . . . has formed a major part of our work."

Initial support for Dr. Wheatley was in the amount of $6,000 per year for a 3-year grant period starting September, 1960. Working out of his "surgery," Dr. Wheatley concentrated his early studies on the treatment of the milder form of neurotic illness seen in general practice. Although mainly of historical interest, given the present "state of the art," Dr. Wheatley's early studies reflected the principle of pharmacological conservatism which remains as valid today as a decade ago. In essence, that principle states that older drugs are to be preferred to newer drugs until there is clear evidence to support the therapeutic superiority of the newer agent. Thus, in his early trials, Dr. Wheatley focused his studies on older medications: a sedative of the barbiturate class (phenobarbital) and a stimulant from the amphetamine group. Three trials were undertaken: phenobarbital vs. placebo in neurotic anxiety; dextroamphetamine vs. placebo in neurotic depression; and the amphetamine-barbiturate combination vs. the individual components in patients with mixed symptoms of anxiety and depression. Results of these early studies indicated a therapeutic advantage for the barbiturate in the treatment of anxiety, but a therapeutic disadvantage for amphetamine in the treatment of depression. In the cases of mixed anxiety-depression, the barbiturate did better than the combination and substantially better than amphetamine. In the current atmosphere of concern regarding "pep" pills and "speed freaks," it is reassuring to know that Dr. Wheatley has early gone on record as indicating that amphetamine had no place in the treatment of anxiety and depression in general practice.

In the course of this early study, it was noted that placebo (e.g., an inert sugar pill identical in appearance to the active medication) produced a 50 percent reduction in the symptoms associated with mild anxiety. This finding highlights a nonspecific component involved in patient response to psychotherapeutic drugs and makes the point that controls of this type are indeed essential to understand the true pharmacologic impact of a potential therapeutic agent. It should be noted that the use of a placebo control helped establish the ineffective and contraindicated nature of amphetamine in treating depression. Thus, the popular assumption that the use of placebo is necessarily bad or that patients are being denied adequate treatment when they take part in psychotherapeutic drug trial, is clearly an oversimplification. It is obvious, however, that once the safety and efficacy of a treatment has been established, that other newer drugs targeted for the treatment of the same condition might well be compared with that standard. Dr. Wheatley, opting to proceed in this fashion, tested Librium (chlordiazepoxide), one of the newer minor tranquilizers, against phenobarbital in two large sample studies. While these two medications proved about equally effective in acute anxiety states (e.g., in patients suffering from the symptoms of anxiety for 6 months or less), Librium proved reliably better than the barbiturate in chronic anxiety states. Since other data indicated that Librium was a safer drug from the standpoint of overdosage, it was adopted by Dr. Wheatley as a standard reference drug against which other antianxiety drugs were evaluated. Over the years eight other drugs were compared against chlordiazepoxide, but only small differences were found among them, and none of the drugs tested was found to produce a significantly faster amelioration of anxiety or a reliably greater reduction of distress. In general, drug treated patients showed an average 65 percent reduction in anxiety by the end of the fourth week of treatment.

In the treatment of neurotically depressed patients, two tricyclic antidepressants–imipramine and amitriptyline–proved reliably superior to placebo and were adopted as the pharmacologic standards against which other potential antidepressant medications were compared. In 10 trials employing other tricyclic antidepressants, major tranquilizers, the combination of antidepressants and either major or minor tranquilizers and antidepressants of the monoamine inhibitor class, little or no therapeutic advantage was found for any particular medication or combination of medications. In general, the results of these trials were similar to those with anxious patients. A fairly small amount of improvement took place after the first week, with gradual improvement over the second and third weeks, and maximum improvement by the end of the fourth week (e.g., a reduction in distress of roughly 60 percent).

Dr. Wheatley has recognized the pressing need for developing a faster-acting antidepressant medication and was able to confirm the results reported by an American, Dr. Arthur Prange. The addition of T_3 (triiodothyronine) to the tricyclic antidepressant amitriptyline reliably decreased the time required for the antidepressant to exert its mood-elevating effects. There is some question, however, whether this faster action holds for both sexes and might not be obtained by starting with higher dosages of the tricyclic medication alone.

In addition to evaluating the relative efficacy of medications thought to have antianxiety and antidepressant effects, Dr. Wheatley has also been interested in trying to identify subgroups of patients who might respond particularly well to pharmacotherapy. Based on more than 1,000 cases treated in the course of his anxiety and depression studies, he has explored a number of potential predictors of drug response including such variables as age, sex, race, prior treatment history, duration of illness, marital status, patient and doctor attitudes toward the likelihood of a successful outcome of treatment, and so on. In anxious patients the following variables were found to favorably influence outcome: being ill less than 1 year, having had no prior attacks, being single, being better educated, being optimistic regarding treatment, and being treated by a physician who was himself optimistic regarding a favorable outcome.

A somewhat different set of predictors was found related to successful outcome in treating depression. Since very large numbers of patients were required to statistically identify predictors of good outcome, Dr. Wheatley indicated, "from a practical point of view, we cannot conclude that any knowledge of predictors is of help in defining the patients most likely to respond to psychotropic drugs."

In addition to his major focus on treating anxiety and depression, Dr. Wheatley has also studied the treatment of eneuresis in children. In two studies, he has reported a very clear advantage for the tricyclic antidepressants, imipramine and amitriptyline, over placebo in markedly reducing "wet" nights.

In other studies, Dr. Wheatley has investigated the possible role for psychotherapeutic drugs in the control of menopausal symptoms and in alleviating the emotional distress which typically is experienced by patients with peptic ulcers. The case for using psychotropic drugs in the treatment of menopausal symptoms seemed quite convincing, while the indications for the use of a tranquilizer in treating peptic ulcers was more uncertain.

Dr. Wheatley is currently engaged in a collaborative project with staff of the Psychopharmacology Research Branch in exploring the extent and possible role of psychiatric symptomatology in cases of essential hypertension. He is moving toward a controlled trial in patients with this debilitating disorder. This trial would investigate the potential therapeutic advantage in adding a minor tranquilizer to the usual antihypertensive treatment regimen. This advantage might result from reducing either psychiatric symptomatology and/or elevated blood pressure. The results of this study should further our understanding of the etiology of essential hypertension.

Other studies being contemplated include the possible use of some of the newer beta-adrenergic blocking drugs such as practolol in the treatment of neurotic anxiety and depression.

Dr. Wheatley and the General Practitioner Research Group have received approximately $200,000 in grant and contract funds from the National Institute of Mental Health. The scientific progress of this research has been closely monitored by staff of the Psychopharmacology Research Branch and Dr. Wheatley's program has been formally reviewed by staff members and non-Government experts in psychopharmacology on a regular yearly basis since 1964. On an average, the network of physicians coordinated by Dr. Wheatley have completed four drug trials per year involving roughly 100 patients per trial at a cost of about

$3.00 per patient visit. This cost of $3.00 per patient visit is remarkably reasonable by American standards. It has been rather conservatively estimated that it would have cost 4 to 5 times the amount of the funding to Dr. Wheatley to collect comparable data in this country. This comparison is somewhat moot, however, since a comparable network of private physicians does not currently exist in the United States. About the closest approximation to this type of physican network is one in the Philadelphia area involving about 30 physicians, coordinated by a psychiatrist at the University of Pennsylvania, Dr. Karl Rickels.

It is quite interesting that Rickel's grant-supported research team has frequently replicated the findings of the Wheatley network and vice-versa.

Some of the very real advantages for doing research in the general practice setting have been documented by Dr. Rickels. He started his psychotropic drug studies with psychiatric and medical clinic patients and in 1964 expanded his research focus to include patients seen by general practitioners. For one thing, patients treated by their family doctors tend to be more cooperative than clinic patients. They take medication as prescribed, keep regularly scheduled appointments, and are more cooperative in completing forms developed to evaluate the effects of treatment. Moreover, in a number of studies Dr. Rickels has found that patients treated in general practice setting tend to be more responsive to active medication, and less responsive to inactive medication (placebo), than psychiatric or medical clinic patients. Thus, psychotherapeutic drugs can be more sensitively evaluated in the GP setting than elsewhere and since this is where most psychotherapeutic drugs are prescribed, this information is indeed extremely relevant to clinical therapeutics.

Because of Dr. Wheatley's extensive research with psychotherapeutic drugs the American consumer can feel more confident that the psychotherapeutic drugs he takes will be safe and effective. It is difficult to put a price tag on this kind of assurance, but the total cost of support to Dr. Wheatley could have been paid more than 10 times over by placing a one penny tax on each of the prescriptions for psychotherapeutic drugs written in 1970. The authors of this article believe the monies spent to support the General Practitioner Research Group in England to be a very real "bargain," considering the quality and quantity of studies undertaken by this Group.

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MEGAVITAMIN TREATMENT, CULTURE AND TRANQUILIZERS, DRUGS FOR THE AGED: PROJECTS OF A CANADIAN GRANT

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Assessing the efficacy of drugs for mental disorders is a difficult task. The following account describes selected activities of a Canadian group of researchers whose work in this field is world renowned. Their work has been supported in part by NIMH.

Most clinical investigators are motivated to do research primarily by their own curiosity, interest and drive, but they are also influenced by many other factors, including their cultural, ethnic, economic, and political ambiance. In this article we shall attempt to illustrate this partly by giving a brief account of a few areas in our clinical psychopharmacological work, some of which have developed because of our particular location, that is at a Canadian University in the bilingual Province of Quebec.

Nicotinic Acid in the Treatment of Schizophrenia. (Megavitamin Therapy)

In 1954, Hoffer and his collaborators proposed the theory that adrenochrome, an (in vitro) oxidation product of epinephrine was responsible for the psychopathological changes seen in schizophrenic patients. They suggested that the administration of high doses of nicotinic acid would prevent epinephrine formation and thus restrict the supply of the substance from which the alleged psychotoxic aminochrome is formed. Independent of these theoretical considerations and following the first successful clinical trial with nicotinic acid at Saskatoon (Saskatchewan), several other clinical investigations with this substance were conducted, first in Canada, and later also in the United States and in Europe.

As a result, Hoffer has recently (1962, 1971) declared that high doses of nicotinic acid (vitamin B_3)—from 3,000 to 30,000 mg per day—have a gradual and definite beneficial effect on schizophrenic patients. He further reported that nicotinic acid, when combined with a variety of other pharmacological, physical, and psychological treatments produced a better therapeutic outcome than could be achieved by any of these treatments alone. There were some enthusiastic reports about the new "megavitamin" treatment by some clinicians who followed Hoffer's theories and instructions. But there were also investigators who failed completely to obtain any positive therapeutic changes with nicotinic acid in schizophrenic patients.

Notwithstanding the unresolved controversy and the conflicting results, high-dosage nicotinic acid (megavitamin) treatment of schizophrenic patients has recently been widely and forcefully advocated in North America. Since the original treatment was developed in Canada, it was felt that it was a primary responsibility of Canadian investigators to attempt a clarification of the confusing situation and a validation of the therapeutic usefulness of high dosage nicotinic acid administration. The Canadian Mental Health Association first prompted us to undertake these studies, but without the substantial support received from our NIMH grant we could not have successfully undertaken this task.

Since the initiation of our nicotinic acid studies more than 5 years have passed, and several of the originally designed 12 clinical trials have been completed. So far, our findings in these studies strongly suggest that the administration of nicotinic acid in the dosage of 3,000 mg per day has no applicable therapeutic effect, or may even have a negative therapeutic effect, in unselected groups of schizophrenic patients. A brief account of our various studies on the effects of Vitamin B_3 in schizophrenic patients follows.

The overall therapeutic efficacy of nicotinic acid as the *sole* medication in a group of newly admitted schizophrenic patients was not found to be superior to the overall therapeutic efficacy of an inactive placebo. In fact, the majority of newly admitted schizophrenic patients—in a placebo-controlled 2-year study with 30 patients—could not be sufficiently controlled with high dosages—3,000 to 8,000 mg per day—of nicotinic acid administration. Although there was a statistically significant improvement with all three treatment regimens—nicotinic acid, nicotinamide, and placebo—in the total scores of the Brief Psychiatric Rating Scale, no significant difference between the groups was found. Further analysis of the data revealed that during the 2-year investigational period—regardless of whether the patients were kept on the project or not—the average number of days spent in hospital was lowest in the placebo (211 days) and highest in the nicotinamide-treated group (353 days). However, the number of days spent in hospital was only slightly higher–214 days–in the nicotinic acid than in the placebo-treated patients (Ananth et al. 1972).

Similarly, the overall therapeutic efficacy of nicotinic acid as an *adjuvant* to conventional phenothiazine medication in newly admitted schizophrenic patients was found to be inferior to the overall therapeutic efficacy of an inactive placebo. In fact, the addition of nicotinic acid, in the dosage of 3,000 mg per day, to regular phenothiazine treatment–in a placebo-controlled 6 months study with 30 patients–prolonged the duration of hospital stay and increased the amount of neuroleptic medication required in treatment. Patients in the placebo group received, and presumably required, a significantly lower total and a lower average daily amount of phenothiazine drugs (418 chlorpromazine equivalent units) than those on either of the active substances (i.e. nicotinic acid, 730 units; and nicotinamide, 705 units). A similar trend was observed in the number of days of hospitalization, although this did not reach the accepted level of statistical significance (placebo, 67; nicotinic acid, 90; and nicotinamide, 88 days) (Ramsey et al. 1970).

The overall therapeutic efficacy of nicotinic acid in the dosage range of 3,000 mg per day and of nicotinamide as adjuvants to regular phenothiazine medication in chronically hospitalized schizophrenic patients was found to be inferior to the overall therapeutic efficacy of an inactive placebo. In none of the three groups were there statistically significant improvements on the global scores of the Brief Psychiatric Rating Scale (BPRS) at any time during the study. An analysis of the total BPRS scores of the individual patients, however, revealed that seven patients of the nicotinamide group, six patients of the placebo group, and one patient of the nicotinic acid group improved, while nine patients of the nicotinic acid group, four patients of the placebo group and three patients of the nicotinamide group deteriorated. Moreover, it was shown that patients in the placebo group required less increase (7.5 percent) in their regular phenothiazine medication than patients in the two active treatment groups (i.e., nicotinic acid, 23.2 percent; and nicotinamide, 18.1 percent).

Similarly, in another group of chronically hospitalized schizophrenic patients, where we attempted to test the efficacy of a combination of vitamins as compared to single administration, the overall therapeutic efficacy of combined administration of nicotinic acid (3,000 mg per day) and pyridoxine (Vitamin B_6, 75 mg per day) as adjuvant medications was found to be inferior to the overall therapeutic efficacy of the individual component vitamins within the 48-week investigational period.

In view of the unresolved controversy of the therapeutic effectiveness of nicotinic acid in the treatment of schizophrenia, the practical decision of whether niacin should be prescribed must still be influenced by careful consideration of the known adverse effects that this treatment may produce.

In this context, one should not overlook the fact that nicotinic acid can produce numerous adverse reactions. Among the most frequently seen are dermatological (flushing, itching, skin rash and acanthosis nigricans-like lesions), gastrointestinal (increased salivation, heartburn, nausea, vomiting, diarrhea, and activation of peptic ulcer), liver functioning (increased transaminase values, jaundice, and lowered blood albumin), cardiovascular (low blood pressure, fast pulse rate, and fainting attacks) and endocrinological side effects (increased blood sugar).

Our carefully controlled clinical studies of the efficacy of nicotinic acid in the treatment of acute and chronic schizophrenia have yielded negative results. Furthermore, we noted that the use of this vitamin at high doses is not without significant—though usually not dangerous—side effects or toxicity. Consequently, it would be rash, in our opinion, to advocate its general use in the treatment of schizophrenias. Nevertheless, the possibility that certain, unidentified, particular groups of schizophrenic patients may actually respond to large quantities of vitamin B_3 cannot be entirely ruled out. We are still systematically investigating this possibility, although we have no way of telling which particular patients may show a favourable response.

Transcultural Study with Doxepin (Sineguan)

We have been engaged in systematic clinical studies with doxepin, an antidepressant drug with tranquilizing properties, and our particular location in the bilingual Province of Quebec made it possible to carry out a transcultural study within the boundaries of our Early Clinical Drug Evaluation Unit in two collaborating hospitals—one caring for English speaking (anglophone) and the other for French speaking (francophone) patients—100 miles apart. Accordingly, we have completed two controlled clinical studies in psychoneurotic patients in which the antidepressant drug, doxepin, was compared to chlordiazepoxide (Librium), a standard tranquilizing drug, in a francophone and in an anglophone setting.

The first study was carried out in 30 psychoneurotic outpatients at the Outpatient Clinic of Hôpital des Laurentides at l'Annonciation, approximately 100 miles north of Montreal, in a francophone district. The patients who were included in this study were randomly divided into two groups and given either doxepin (75 mg to 150 mg daily) or chlordiazepoxide (30 mg to 60 mg daily) in a double-blind fashion over a period of 4 weeks. Patients were seen initially and then weekly by a psychiatrist. On the basis of these interviews the Brief Psychiatric Rating Scale (BPRS), developed by Overall and Gorham, and the Wittenborn Psychiatric Rating Scale (WPRS) were scored. The patient himself completed the Self Rating Depression Scale (SRDS) of Zung during these visits. Prior to the commencement of drug administration, and at the termination of the study, another evaluation, the Clinical Global Impression of severity of illness, was completed by the treating psychiatrist, and laboratory tests were done.

A statistical analysis of the changes in the individual symptoms revealed significant improvement with both drugs. In particular, doxepin produced statistically significant improvement in anxiety, tension, somatic concern, guilt feelings, depressive mood, and motor retardation on the BPRS, and chlordiazepoxide produced significant improvement in anxiety, tension, guilt feelings, and depressive mood. Drowsiness and dizziness were prominent side effects noted in both groups; other side effects were infrequent, and there were no abnormal laboratory findings.

The second study followed an identical protocol but was carried out at the Outpatient Clinic of the Lakeshore General Hospital in Pointe Claire, approximately 20 miles west of Montreal in an anglophone setting. Here, statistical analyses yielded two significant findings and one apparent trend: anxiety–greater improvement with chlordiazepoxide; motor retardation–greater improvement with doxepin; uncooperativeness–a trend toward greater improvement with chlordiazepoxide.

There were similarities and differences in the findings of these two studies. We hoped that by pooling the two experimental populations the differences related to demographic contingencies would become accessible for analysis and that the resulting enlargement of sample size would amplify the similarities in the drug-induced changes. The combined population (60 patients) was the result of pooling the experimental populations of the two clinical trials. Statistically significant changes were shown on six of the 18 BPRS items, reflecting a statistically significant reduction in mean total scores from the pretrial assessment to the termination of the clinical study. Chlordiazepoxide produced significant improvement in somatic concern, anxiety, guilt feelings, tension, and depressive mood, while doxepin produced significant improvement in somatic concern, anxiety, guilt feelings, tension, depressive mood, and motor retardation. Thus, the only difference, as expressed in BPRS items, between the therapeutic activity of the two drugs was in motor retardation, where only doxepin produced a significant improvement.

Further analysis revealed that therapeutic responsiveness in certain symptom areas cut across experimental settings and was found to be mainly drug-dependent, while in other areas the environmental setting had a strong influence on therapeutic effects, regardless of the drugs administered. Thus, motor retardation improved significantly with doxepin, regardless of the environment, but anxiety, emotional withdrawal, and uncooperativeness showed a tendency towards greater improvement with the standard drug. On the other hand, regardless of the drugs used, patients at the outpatient clinics of Laurentides showed greater improvement in anxiety and global severity than at Lakeshore Hospital; and a greater improvement in guilt feelings at Lakeshore than at Laurentides. Furthermore, there was a tendency for greater improvement in tension and in somatic-hysterical symptoms in the (francophone) Laurentides patients, and in hostility and suspiciousness in the (anglophone) Lakeshore patients.

These differences in therapeutic changes regardless of the medication used, were thought to be related to the demographic, cultural, and linguistic differences between the two clinic populations.

The Laurentides clinics are located in sparsely populated rural areas, while the Lakeshore clinic is located in a suburban area. Moreover, population of the Laurentides clinical trial consisted almost exclusively of female patients (93 percent) with a history of previous treatment (90 percent) and family mental illness (87 percent). On the other hand, the population of the Lakeshore trial consisted primarily—but to a lesser extent—of female patients (67 percent) who also had a high incidence of definite, precipitating stress. As to the Laurentides group, it was interesting that almost none of these patients showed adequate occupational adjustment. It should also be remembered that the Lakeshore group consisted of English speaking (anglophone) patients while the Laurentide group was French speaking (francophone). Each hospital group, thus, represented a different culture as well as different social and psychological characteristics.

Our findings suggest that there exist notable effects of different demographic contingencies, including culture and language, on the pattern of therapeutic responsiveness of patients, regardless of the specific treatment used. But it was also shown that, independent of the environmental setting, both the new and the standard drugs were almost equally effective in the treatment of psychoneurotic patients.

Prediction of Therapeutic Response in Psychogeriatrics

Medical science has succeeded in extending the life expectancy of the average person by about 30 years—that is, the life span of a whole generation—since the beginning of this century. According to a WHO report of 1959, individuals over 60 years of age constitute about 13 percent of the total population of Europe, 10 percent of North America, 8 percent of Latin America, 7 percent of the Oceanic countries and 5 percent of the people of Asia and Africa.

This situation has resulted in the emergence of many new problems in the area of public health, more particularly mental health, because of the high incidence of psychiatric morbidity in the aged population. Because of the high incidence of mental disorders in the aged, the field of psychogeriatrics is today assuming special importance. Since psychogeriatrics is rapidly becoming a major problem in Canada as in other developed countries in the world, we have extended our psychopharmacological investigations to this particular area of research.

We have studied the efficacy of various psychoactive drugs in aged psychiatric patients over several years in our Early Clinical Drug Evaluation Unit. In the first phase of our long-term study, patients' responses to a battery of psychometric tests were observed while they were under the influence of a "psychopharmacological load" (Lehmann, Ban, and Kral 1968; Lehmann and Ban 1970). During the second phase, it was attempted to determine the most successful psychoactive drug for individual geriatric patients (Lehmann, Ban, and Saxena 1972). At the same time the possible relationship between test-performance responses to the acute psychopharmacological load and therapeutic responses to the chronic administration of six different psychoactive drugs was explored.

It was found that of six psychoactive drugs, three—i.e., thioridazine, nicotinic acid, and fluoxymesterone—had the greatest overall therapeutic efficacy in chronically hospitalized geriatric patients. Although findings of statistical significance were limited, some statistical results as well as clinical observations suggested that performance changes on the test battery, following pharmacological loads, may serve as predictors of the therapeutic effectiveness of specific drugs. For instance, a favorable therapeutic response to the thioridiazine appeared to be associated with an overall decrease in psychometric test performance following the pharmacological loads of carbon dioxide inhalation or methamphetamine injection. A favorable therapeutic response to fluoxymesterone appeared to be associated with an overall improvement of the psychometric test performance following loadings with carbon dioxide and methamphetamine, or impaired test performance following amobarbital. A favorable therapeutic response to nicotinic acid appeared to be associated with an overall improvement of test performance following carbon dioxide inhalation and with impaired test performance following methamphetamine and amobarbital injections (Lehmann and Ban 1970).

On the basis of these findings, a comprehensive clinical study with 120 geriatric inpatients was designed to test the efficacy of the three psychoactive medications which had proved most successful—thioridazine, nicotinic acid and fluoxymesterone—alone and in combination with each other. At the same time, an attempt was made to confirm the preliminary predictive findings, more particularly the relationship between test performance changes under carbon dioxide administration and long-term therapeutic effects.

Seven of the eight treatment regimes did not yield any statistically significant positive changes of the total psychiatric rating scale (BPRS) scores in the course of the clinical trial. The combined administration of thioridazine and fluoxymesterone, however, produced a statistically significant improvement of the total scores by the termination of the clinical study.

Nicotinic acid alone and fluoxymesterone alone did not produce any statistically significant changes in any of the items of the BPRS, thus seemingly at least maintaining the patient's clinical status. It should also be noted that placebo alone as well as the triple-combined administration of nicotinic acid + thioridazine + fluoxymesterone produced only statistically significant negative changes and allowed the patients to further deteriorate.

At the end of the treatment trial we separated our patients into two groups on the basis of their total BPRS scores: i.e., therapeutically responsive or unresponsive. Similarly, we classified them on the basis of their performance on the seven psychometric tests while under the influence of the psychopharmacological load—i.e., either increment or decrement in test performance.

Results of statistical analysis showed that a decrease in reaction time under the carbon dioxide load was significantly related to positive therapeutic changes with the thioridazine + fluoxymesterone administration, and also to negative therapeutic changes with placebo. Furthermore, a decrease of word association time was significantly related to negative therapeutic changes with thioridazine and an increase of word association time to negative therapeutic changes with nicotinic acid administered as single medications. Finally, a decrease in performance of a simple memory test (repeating digits) was significantly related to negative therapeutic changes with nicotinic acid.

Trends in the statistical analysis also suggested that patients with an increase in reaction time and/or a decrease in word association time after carbon dioxide inhalation will respond beneficially to the combined administration of nicotinic acid and thioridazine. A similar trend toward improvement with the thioridazine + nicotinic acid combination was noted regarding female patients of the relatively younger age groups, with a comparatively shorter duration of hospitalization.

A great deal of work has gone into these investigations. But, neither the question of the efficacy of megavitamin treatment for schizophrenic patients, nor of the influence of cultural factors on the effects of tranquilizers, nor of the possibility to predict the outcome of treatment with different medications in psychogeriatric patients, has been definitively answered. All we can claim to have done with these socially relevant problems—and many others on which our grant has enabled us to work—is to have shown that they can be attacked systematically and will yield, bit by bit, to organized effort. Some day—perhaps tomorrow, perhaps in 10 years—our findings will help us or some other investigator to provide closure for these questions, take them off the board and make room for other questions.

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STUDY OF THE DISCHARGE OF SCHIZOPHRENIC PATIENTS IN TURKEY AND THE UNITED STATES

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Transcultural psychiatric research can often shed light on phenomena in one culture by juxtaposing it with another culture. Such is the case with the following, a summary of recently begun research on the dischargeability of schizophrenic patients. Research like this uses a transcultural perspective to search for new knowledge on which to base future psychiatric programs for schizophrenic patients.

As air travel has shrunk the size of our world during the last decade, nations on the opposite sides of the globe have become as close as neighbors across town. There is mutual admiration of achievements, sympathy for sorrows, and a mutual interchange of knowledge in which nations learn from each other. Along with Paris fashions, Chinese cuisine, shoes from Brazil, there is an international quest for medical and social science knowledge. It was in this spirit of international search for ways to help people suffering from schizophrenia that this transcultural study in discharge of schizophrenics was begun.

Studies in the treatment of chronic, therapy-resistant schizophrenia through use of conventional and new drugs were being carried out in Missouri and Turkey, and it became apparent that doctors in both countries were faced with serious social problems in discharge of patients from the hospital after treatment was given or to keep them for adequate time in hospital (Itil et al. 1970*a*; 1970*b*; Keskiner et al. 1970). In Missouri certain families refused to take patients home. From clinical experience it was observed that black Americans took their ill relatives home and cared for them more readily than did white Americans. It seemed that the same might be true, although to a lesser extent, of country people as compared to city people. Often patients themselves were reluctant to leave the hospital no matter how much their psychiatric illness had improved. Much time and effort of social workers went into locating and interesting relatives in permitting the newly discharged patient to live with them, and often a plan had to be made with a community-sponsored resource such as a foster, boarding, or nursing home when relatives refused.

By contrast, in Turkey doctors and social workers had equally difficult but very different kinds of problems. There they could not keep the patients in hospital long enough to complete the treatment. With minimal improvement the patients and families often demanded immediate discharge; and if it was not granted; the patients signed out of the hospital against medical advice or ran away and went back to their families. The misfortune of this was that had these patients remained a few more days or weeks the treatment could have produced maximum improvement or even complete remission from the illness. A review of studies being done in Turkey at that time showed that the proportion of patients dropping out of studies in this manner ran as high as 22.4% (Itil et al. 1970*b*).

Statistics on the hospitalization of patients for mental illness in general in the two countries reflect a different use of hospitalization in the treatment of mental illness. In the United States with a population of about 180,000,000 in 1966, prior to the start of this study the number of average daily resident patients in public mental hospitals per 100,000 was 238 and in Missouri 228 (Joint Information Service, APA and NAMH 1968). In Turkey at about the same time there were 6,000 psychiatric hospital beds for a total national population of 35,000,000 or a daily rate of 350 patients per 100,000. Turkey does not have a waiting list of patients for hospitalization.

Based on epidemiological studies carried out partly under sponsorship of the World Health Organization, it is already an accepted fact that "schizophrenia occurs in every segment of the human population, regardless of social, economic, or cultural status. . . . The general expectancy of the disorder is close to 1 percent. . . . This finding more or less precludes a universal species vulnerability, or explanation based on such general emotional group experiences as may be related to dominant cultural value systems or other social-class variables" (Kallmann 1959). Thus the researchers knew it was the family and community cultural patterns, not a different form of illness in the two countries, that accounted for the differences in discharge and in community adjustment of the patients. Some aspects of symptomatology of the illness do differ with the cultures; in hallucinations, for example, an American patient may think he hears Christ talking while a Turkish patient would think it was Mohammed's voice he was hearing; but the phenomenon of hallucination is basically the same. This has been previously studied and reported in the literature (Saenger 1968; Murphy et al. 1963).

Earlier studies by Klein et al. (1972; 1973) had identified characteristic family and community patterns that were associated with hospital discharge and successful community adjustment of schizophrenia patients in Missouri. These findings provided the base on which to study another dimension—culture—as an influence in community adjustment of the schizophrenically ill.

The doctors, nurses, and social workers in Missouri and Turkey believe that if the characteristics in the family and community culture which brought about such divergent behavior in the two countries can be identified, then some remedial social and educational measures may be taken to benefit both countries. Missouri patients can be discharged more promptly and easily and back to their families rather than to community supported resources; and Turkish patients can be kept in the hospital until treatment is maximumly effective.

Meanwhile, as a counterreaction to America's problem and without benefit of the kind of knowledge this study is seeking, mental health programs in this country are now giving many patients outpatient treatment or "crisis intervention" care, i.e., short-term hospitalization for 24 or 48 hours for prescription of medication followed by immediate discharge, in order to avoid unnecessarily long hospitalization with the social "institutionalization" syndrome which occurs when people live too long in a regimented way, and to avoid difficult or delayed discharge. This is a "tit-for-tat" game with relatives which says, "If you won't take them back when they are ready for discharge, we won't take them in or won't keep them long when they need to come." Some earlier research raises the question whether, indeed, treatment at home is a satisfactory substitute for hospital treatment of schizophrenics (Pasamanick et al. 1964).

An earlier unsatisfactory counterreaction to this problem of discharge has been to empty mental hospitals into boarding and nursing homes when families would not or could not take patients back home. This further fragmented family structure and required greater community and government financing and supervision of the dependent and/or partial rehabilitated patients. It also did not solve the inflow of newly ill who could become ultimately and potentially difficult discharge problems for the hospital. Study is being made to learn after a patient leaves the hospital what kinds of social and medical treatment may most effectively enable a patient to remain home (Hogarty and Goldberg 1973). If not curbed, discharges which end in high relapse rates and readmissions to hospitals can lead to a revolving door pattern of hospitalization in which many patients leave the hospital only to return. Much more research is needed to determine when hospitalization is required, and, when used, the optimum length of hospital care for different kinds of mental illness, before sound treatment programs can be instituted. Preferred treatment for some may be outpatient care only; for others, short-term crisis intervention hospital care; and for still others, longer hospitalization. But it is crucial that medical as well as social guidelines be established by which it is possible to predict in advance which is the preferred treatment for each patient.

This recent attempt not to institutionalize patients in the United States is being done apparently successfully in Turkey due to the lack of psychiatric beds. There, however, patients are not being transferred to other state institutions, boarding, or nursing homes but are returned to their families, which obviously is less costly for the public and more humane for the patients. If the relapse rate among Turkish patients is not higher than among United States patients, it may be assumed that family environment is more proper for prevention of relapse and for improvement of schizophrenia in addition to saving public money and for family betterment. Determination of the differences between American and Turkish family attitudes will be important information for the United States psychiatric community.

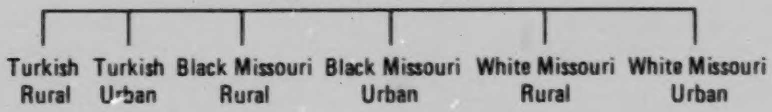
One of the major objections in the United States to the treatment of schizophrenia on an outpatient basis without hospitalization has been the danger to the community from schizophrenic patients. Although not directly emphasized in the Transcultural Study in Discharge of Schizophrenics, an attempt will be made to determine the rate of severe criminality in Turkey and in Missouri in the general population and among the schizophrenics. The researchers postulate that involvement of schizophrenics in severe crime is not significantly different than in other populations, certainly less than for drug addicts, epileptics, and alcoholics.

The design of the Transcultural Study in Discharge of Schizophrenics was the composite efforts of both American and Turkish research team members. Each psychiatrist, nurse, and social worker speculated out of his clinical experience in working with patients what might make patients and their families in certain segments of the United States population wish for too long hospitalization and for Turkish patients and their families wish for premature discharge. Is there something different in the way hospital staffs take care of the patients? Are the hospital buildings and physical facilities very different from what the patients are accustomed to at home? (For example, American patients often find air conditioning in the hospital but do not have this at home; or many Turkish patients have better bath facilities at home than at the hospital.) Are the social, religious, and recreational activities quite different in the hospital compared to what the patients are accustomed to at home? Or is it that the families' attitudes toward the cause of the illness and their beliefs about the best way to treat the illness differ in the two countries? Perhaps American families believe most strongly in hospitals and medicines while Turkish families believe most strongly in home remedies or in Allah? Perhaps something in the more highly industrialized structure in America makes taking a recuperating relative back home more difficult than in a less industrialized country like Turkey? Communal patterns of family life are still strong in Turkey; in the United States they have disintegrated to a large extent; is this the critical difference? Perhaps family and community acceptance and tolerance of the strange symptoms schizophrenics show during illness is greater in Turkey than in the United States? Very possibly there is no single answer that will explain differences in the two countries but rather a combination of reasons or a set of circumstances will be found.

Three hundred newly admitted patients and their families from Missouri State Hospitals and Bakirkoy State Hospital in Istanbul are being interviewed at the time of hospital admission, at discharge, and at one year following discharge, which will provide a data base of 3600 interviews for analysis. Questionnaires covering a detailed review of all the above and many other possible influences are being used as well as scales to measure degree of illness, to describe the patients' symptoms and behavior, and to determine how patients function before coming to the hospital, when they are ready to leave the hospital, and at home after they leave the hospital.

Not only are differences anticipated between Turkish and American families and communities, but degrees of difference are expected in each country. The samples of patients in each country are selected from both urban and rural areas. In Missouri the samples of rural and urban are further broken down into black rural, black urban, white rural, and white urban. The prediction of the research team is that the differences in these six sub-groups will fall on a continuum as shown in the following diagram.

PREDICTED CONTINUUM OF SOCIAL DIFFERENCES
BY CULTURAL SUBGROUP



When this study is completed the findings will be published in professional journals and newsletters in both English and Turkish so that professional staffs caring for schizophrenic patients may make use of the facts that were proven to be significant and that will lead to better care of the schizophrenically ill. The study will provide guidelines for predicting discharge and community adjustment after discharge based on the patients' cultural backgrounds, for more effective medical and nursing hospital care, for reducing length of hospitalization without shortening it to the danger point of increasing relapse rates and readmissions, for a sounder and broader base for community education in mental health care, and for control of social environment so that optimum benefit of psychiatric treatment can be achieved for patients. It will also test some assumptions now held, such as that early hospital discharge is causally associated with better recovery, thus providing new knowledge on which to base future psychiatric programs for schizophrenic patients. Optimum benefits from psychiatric treatment can be realized only insofar as the social environment can be controlled to meet the patients' needs. Learning ways and means of better controlling the social environment is the major objective of this research.

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10

AUTISTIC CHILDREN IN ENGLAND: A FOLLOW-UP AFTER EIGHT YEARS

VICTOR LOTTER, Ph.D.

The availability of case records of mental illnesses, both for comprehensive original studies and for follow-up studies, must be utilized wherever they exist. Often this is in other countries. The following account of a follow-up study of autistic children illustrates how such studies may usefully contribute to our understanding of such illnesses.

Amongst mentally handicapped children there are some who in proportion to their numbers have attracted a great deal of attention. Everyone has heard of autistic children. Usually they are noticeably peculiar before 3 years of age. A combination of normal appearance, social unrelatedness, strange ritualistic behaviour, absent or noncommunicative speech, and unusual patterns of abilities, makes them hard to classify, difficult to live with, often impossible to "place" in conventional educational establishments, and a psychological puzzle. They have been called many names; most commonly they are referred to as "psychotic," or "schizophrenic," or "autistic." The labels are interesting insofar as they illustrate the problem of classification, and represent differing convictions about the nature of the disorders. In general these differences have turned on the supposed relation to other syndromes such as schizophrenia, "emotional disturbance," maternal or sensory deprivation, or mental deficiency, with associated suppositions as to causes.

Amongst the various ways autistic disorders can be studied, longitudinal investigations have a special place: they can describe the developmental course of the disorders, and bring into relation developmentally earlier and later information about the same people more reliably than is otherwise possible. Important clues may emerge for the prediction of outcome and the delimitation of syndromes, thereby contributing indirectly also to the search for causes. Very few groups of autistic children have been studied longitudinally; the most adequate investigations have been reported by Dr. Michael Rutter from the Maudsley Hospital in London. The two especially important characteristics of the study described in this chapter are, first, that cases were identified in a way similar to, and therefore comparable with, that used in Rutter's series, and second, that they represented all cases in a defined population. The possibility is always present that the results of a particular study might represent the selectively biased characteristics of austistic children admitted to a certain institution, rather than of autistic children generally. Results based on similarly described children from a whole population are therefore valuable for comparison with those derived from clinic or hospital populations. The existence of readily available comprehensive records routinely maintained in England made both the original and followup studies possible.

Middlesex is part of Greater London; in 1964 the 78,000 children aged 8, 9, and 10 years (in a total population of about 2¼ million) were screened in order to identify all children with behavior similar to that described for autistic children. After several successive screening stages during the latter phases of which children were individually interviewed and tested, a final group of 57 children who exhibited the defined behavioral features was selected. Of these children, those with most marked autistic behavior (N = 35) were called "autistic"; the remaining 22 "nonautistic" children were retained for comparison. These numbers represent an age-specific prevalence rate of 4.5 per 10,000 for autistic conditions in a large urban population. Detailed social and medical histories were obtained for all but 3 of these 57 children.

In 1972, 8 years after the original survey, followup information was sought concerning all 54 children. We wanted to know how they had turned out, whether there was any way we could have predicted how they would turn out, and in general what the differences were between those who were relatively more or less handicapped in late adolescence.

The writer revisited England for 4 months during the winter of 1972. With the consent of the parents, and the generous cooperation of the Greater London Council and the 10 Borough Medical Officers of Health, case files for 51 of the 54 children were examined. In most cases these contained records of periodic psychological testing, medical examinations and school reports. The children were interviewed and tested either at home or in the institutions or schools they attended, and behavior descriptions were obtained in interviews with teachers or attendants. Finally, parents were interviewed in their homes to obtain details of changed family circumstances and further descriptions of the children. Satisfactorily complete information about 51 of the 54 children was obtained. One child had died, and 2 parents refused to be interviewed.

The present condition of the children was rated Good, Fair, Poor, or Very Poor. "Good" meant that the child was employed, or making reasonable progress in school. "Very Poor" meant that the child was totally incapable of an independent life. Of the 29 autistic children, 4 were rated "Good," 7 "Fair," and 14 "Very Poor." Looked at from the point of view of placement, only one was employed, 12 attended special schools or training centers, and 14 were permanently placed in institutions.

Could we have predicted which children would do better or worse? Comparison between a range of characteristics of the children at age 8-10 years and rated outcome resulted in high correlations for I.Q. (.77) and speech (.86); that is, the children with higher test scores, or whose use of speech was most adequate when they were younger, tended to have the best outcome.

When these children were first examined there was often no evidence of organic brain dysfunction, even in those who at 8-10 years seemed very severely handicapped. Some of these children developed fits for the first time in adolescence. Since there is disagreement about whether autistic conditions might involve some kind of "brain damage" rather than primarily psychological disorders, we reexamined our original analysis of the 1964 data, including now our new information. Our question was whether the best and poorest outcomes were distinguished by factors that might show them to result from different influences.

Dividing the autistic children first into two broad categories according to whether I.Q. scores in 1964 were above 55 (High) or below (Low), we then further subdivided the Low I.Q. group into those with and without retarded milestones. When we compared these three groups according to outcome and evidence of neurological abnormalities (fits or definitely abnormal EEG) a fairly clear picture emerged. It can be looked at in two ways.

1. All autistic children in the High I.Q. group at 8-10 years had a Good or Fair outcome. In only one of these 9 children was there evidence of neurological abnormality.

Of the 9 children rated Low I.Q. at 8-10 years, but with average milestones, 7 had a Poor or Very Poor outcome, but only one showed evidence of neurological abnormality.

All the children rated Low I.Q. *with* retarded milestones had a Poor or Very Poor outcome, and 7 of these 11 children showed evidence of neurological abnormality.

2. These relationships can be looked at also from the vantage

point of outcome, asking in effect, How were the outcome groups different? We found that of 11 children with a Good or Fair outcome, 2 had retarded milestones and one showed evidence of neurological abnormality. Conversely, of 18 children with a Poor or Very Poor outcome, 11 had retarded milestones and 7 showed evidence of neurological abnormality.

Since I.Q. scores seem to be one of the best single predictors of outcome, and since developmental retardation and neurological abnormality seem to be strongly associated with poorer outcome, it might be useful at least for research purposes, if subgroups of autistic children were distinguished in these ways. It seems possible that different factors may be involved in the subgroups.

Evidence of mental illness in the families of autistic children is difficult to interpret for many reasons amongst which are the diagnostic criteria used, the smallness of the populations studied, and the possibility that reporting may be incomplete. Parents and siblings may become mentally ill after they are seen at the examination of the autistic child, and further siblings may be born.

Taking inpatient psychiatric treatment as our criterion for mental illness in the parents, we found 3 new cases; one new case amongst the siblings was found. Adding these to our original figures, 6 out of 60 parents of the autistic children, and 3 out of 40 parents of the nonautistic children were included. There are two interesting aspects of these figures: in no case in the autistic group was there an unequivocal diagnosis of schizophrenia amongst the parents, and only one in which this seemed likely in the nonautistic group. Parental disorders were mainly depressive. Secondly, there is no great difference between the frequency of ill parents in the autistic and nonautistic groups. These figures are not consistent with the theory that autistic conditions in early childhood are a form of schizophrenia. Taken together with the fact that none of the autistic children had a diagnosis of schizophrenia at the followup and the high proportion of children with neurological abnormalities, it seems unlikely that autistic children can usefully be classified as schizophrenic.

In 1964 3 out of 57 siblings of the autistic children were considered mentally abnormal; at followup four additional siblings had been born, and one new case was included amongst those classified as abnormal. Three of these 66 siblings showed "autistic-like" behaviour. No sibling in the nonautistic group was mentally abnormal.

If these abnormalities amongst the siblings are considered similar to those we are calling autistic, then the frequency (3 out of 66) is much higher than would be expected according to the prevalence rate of 4.5 per 10,000. It is hard to know what this means, except that some familial factor may be present.

It is routinely found that amongst autistic children there are more boys than girls. In some studies the ratio of boys was as high as 4 : 1; in our study it was over 2 : 1. A curious feature of our results is that all the autistic children with Good or Fair outcome were boys. This may be an accident attributable to the small numbers in our sample. On the other hand most accounts we have seen which describe outcome which is reasonably good, describe only boys. It remains a question whether girls are more severely affected, or whether boys "recover" more readily, or whether perhaps some of the boys who have the best outcome could be classified differently.

The analysis of our results is not yet complete. Amongst other things we must consider the role school experience may play in influencing the outcome. The children we studied had enjoyed enormously varied periods of schooling; some who were admitted early to hospitals had never been given educational help; others had spent all their lives in schools. There is naturally a tendency for the best outcomes to be associated with longest schooling. An obvious but important question is whether some of those with a poor outcome and no history of schooling might have been protected in some degree from the dismal condition they now find themselves in, by some attempt at educational therapy.

In summary, the results of the followup study so far analyzed confirm, in a representative sample of autistic children identified by similar criteria, some of the important recent findings of investigations based on hospital admissions. In the same way as the original 1964 survey confirmed, for example, the excess representation of intelligent middle class parents amongst autistic children, so followup of the same sample confirms the absence of schizophrenia, both amongst the probands at followup and amongst their close relatives, the late onset of fits in some autistic children, the infrequency of recovery, the greater relative frequency of mental abnormalities amongst siblings, and the relative paucity of educational efforts on behalf of those children whose outcome was most somber.

While these kinds of results represent modest advances in the understanding of autistic conditions in young children (and there is evidence in Great Britain of a recent commitment to give such children greater educational opportunities), the plight of the good-to-moderately-well-recovered is an unhappy one. When these children were first seen, parental anxieties focused on getting some kind of schooling for their children. Now, 8 years later, similar anxieties are expressed, but this time about training opportunities for a working life, sheltered employment, and the question, especially poignant for those parents who have kept their children at home rather than sending them to an institution: "What will happen to him when we are no longer there?" Some responsible administrative and/or social response to this dilemma seems overdue.

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11

STUDIES IN DENMARK OF HEREDITY AND SCHIZOPHRENIC DISORDERS[1]

DAVID ROSENTHAL, PH.D.

The following is a summary of research carried out in Denmark over the past 10 years in an attempt to understand the possible relationship of heredity and schizophrenic disorders. It illustrates the importance of utilizing resources in other countries (in this case the records of adoptions) which are not available in the United States.

At the beginning of the 1960's, about a decade ago, Dr. Seymour Kety and I began to discuss the desirability of taking advantage of naturally occurring childhood adoptions to separate the genetic and rearing variables that were thought to play primary etiologic roles in schizophrenia. Not long thereafter, we were joined by Dr. Paul Wender, who had had the same idea. Initially, we attempted to do our studies in the United States, but we ran into many procedural problems. Subsequently, through the good graces of Dr. Sarnoff Mednick, we became acquainted with Dr. Fini Schulsinger in Copenhagen who did so much to translate our strategic ideas into a feasible research program in Denmark.

In our first study in Denmark, we were interested in the incidence of schizophrenia in the biological and adoptive relatives of adoptees who were now schizophrenic adults. Because the focus of the study was the adoptees' families rather than the adoptees themselves, let us call it the Family Study. We are grateful to the Danish Ministry of Justice who made key records available to the project, and we in turn have tried to exercise the greatest discretion in the use we have made of these records.

We began the study by collecting identifying information on all persons who had formally been given up for nonfamily adoption at an early age in the greater Copenhagen area between 1923 and 1947. It turned out that there were almost 5,500 such adoptions. From the records we could learn the name and birthdate of the adoptee, and the names and other identifying information of the adopting and biological parents. In approximately one fourth of all cases, the biological father of the child could not be identified with sufficient certainty to be included in our studies.

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[1] Condensed from D. Rosenthal, Two adoption studies of heredity in the schizophrenic disorders. In: *The Origin of Schizophrenia*, M. Bleuler and J. Angst, eds. Bern: Verlag Hans Huber, 1971.

From the Psychiatric Register and the files of the Bispebjerg Hospital, we were able to find out which of the approximately 5,500 adoptees had been admitted to a psychiatric facility. The hospital records for each admitted adoptee were examined by a Danish psychiatrist who made symptom-ratings on a series of psychopathological characteristics, and who wrote down the dates, hospital, length of stay, and discharge diagnosis for each hospitalization. This psychiatrist also made his own summary diagnosis. Another Danish psychiatrist, Dr. Fini Schulsinger, also read the records and independently made his own summary diagnosis. The information provided by the first psychiatrist was sent to the American investigators who reviewed the reported information and who in turn made their own independent diagnoses.

As a result of this procedure, we were able to select 34 index cases. Of these, 16 cases were chronic or process schizophrenics; 7 were acute schizophrenic reactions of the schizophreniform, schizo-affective or paranoid type; and 11 were cases of borderline schizophrenia, a pair of whom were concordant monozygotic twins who had been adopted by the same family, and whom we treated as a single case since the pair had the same biological and adoptive families.

It was important not only to know the prevalence rates of schizophrenic disorders in the relatives of our 33 schizophrenic index cases. We had to know as well what these rates would be in a control group of adoptees who were not schizophrenic. We selected such a control group from among the remaining adoptees in the total adoptees pool. These adoptees were matched individually to the index cases with respect to sex, age, pretransfer history, and socioeconomic status of the rearing family, and had no file at the Psychiatric Register.

In determining the rates of schizophrenic disorders among the relatives of our 66 probands, we did not examine the relatives personally. Instead, we first identified each biological or adoptive relative who was either a parent, sib or half-sib of a proband, and we then identified each one of these relatives who had a known psychiatric history. These histories were abstracted from records by a psychiatrist who did not know if the individual case he was abstracting was the biological or adoptive relative of an index case or a control. The psychiatric abstract was then sent to the U.S. investigators who independently made their own diagnoses while they were similarly blind regarding the relationship of the relative to the proband. Diagnostic differences among the four major investigators were settled by discussions based on more complete data from the records, before we broke the relationship code.

In this study we were testing two opposed hypotheses.

1. If schizophrenic disorders are heritable, we should find a higher prevalence of such disorders among the biological relatives of our schizophrenic index cases than among the biological relatives of the matched controls.
2. If schizophrenic disorders are transmitted behaviorally, and at least in good part by rearing parents whose own behavior is confused, disorganized, erratic or chaotic, to mention some of the terms cited in the literature, we should expect that the index cases would have a greater number of adoptive relatives with schizophrenic disorders than would be found in the adoptive relatives of the controls.

From the study we found that the schizophrenic disorders occur significantly more often among the biological relatives of the index cases than among the biological relatives of the controls. This finding provides support for the hypothesis of genetic transmission. However, there is no significant difference in the prevalence of schizophrenic disorders among adoptive relatives of index and control adoptees. Thus, these data provide no evidence to support the hypothesis of transmission through rearing by psychotic relatives.

At this point, we need to call attention to several aspects of these findings that are relevant to their interpretation. First of all, is it possible that the significant difference found was the result of the schizophrenic index cases having spent the early part of their lives with their biological relatives, who had more schizophrenic disorders than did the biological relatives of the controls? To check this possibility, we divided all our probands into those who were separated from their biological family in the first month of life and those whose separation came later than that. We reasoned that if longer association with biological relatives was an etiological factor, those who remained with their biological families for a longer time would account for most of the significance found, whereas those who were separated in the first month of life would contribute much less to the significant finding.

The results, however, went directly counter to this expectation. When we compared the biological relatives of index and control cases who had been separated in the first month of life, the value of the significance level actually increased from 0.0072 to 0.0018. Among the biological relatives of index and control cases separated later in life, we found no significant difference in the prevalence of schizophrenic disorders.

The data still pose some questions for us, however. For example, among the 63 identified biological parents of our 33 schizophrenic index cases, not one parent was a clear process schizophrenic. Among the parents of schizophrenics generally, the median morbidity expectancy for schizophrenia in fourteen separate studies summarized by Zerbin-Rüdin (1967) was 4.2%. However, two studies, both done in Scandinavia, reported morbidity expectancies among such parents of less than one percent, and in the study reported by Hallgren and Sjögren (1959), the expectancy for schizophrenia in parents of a schizophrenic was 0.2% as compared to the population incidence which was actually four times higher, or 0.83%. Such findings are puzzling indeed. Three studies report parental expectancies between 9 and 12%, so the rate can be quite high. We cannot go into detailed possible explanations of such marked discrepancies in findings among different studies. Elsewhere (Rosenthal, 1970) I have pointed out that multiple factors are likely to determine the selection or self-selection for parenthood of potential schizophrenics, and these could vary from place to place and from time to time.

With respect to our own data, the fact that we did not find a single process schizophrenic among the biological parents of our schizophrenic index cases no longer appears startling. As mentioned earlier, only 16 of our 33 index cases were themselves hard-core process schizophrenics. Moreover, it is possible that some screening out of schizophrenic parents occurred in that their children may not have been put out for adoption in the usual way. We will check out this possibility in the future.

If we had included in our comparisons of index and control relatives only those individuals who had clear process schizophrenia, we would have found no difference between the two groups of relatives. As a matter of fact, we found only one such case among the 150 biological relatives of our index cases, but we also found one among the 156 biological relatives of our controls. The only other such case occurred among the 83 adoptive relatives of our controls. We found none at all among the 74 adoptive relatives of our index cases. All in all, we found only 3 process schizophrenics among 463 biological and adoptive relatives combined, or about 0.64%, not corrected for age. The uncorrected rate among all adoptive relatives, ignoring the index and control distinction, is almost exactly the same as the rate among all biological relatives, and these rates in turn are well within the range of rates reported for the population at large. Do such findings constitute evidence that process schizophrenia is not inherited as such? Not necessarily. These findings probably represent a combination of circumstances, especially the high likelihood that both the biological and adoptive families have been screened through the adoption process, the fact that the *n* of 16 hardcore process schizophrenic index cases is too small to give the heritability of such disorders the proper opportunity to express itself, and the possibility that by relying only on psychiatric records rather than personal examinations we are missing a number of cases.

I now want to tell you about the second study that we have carried out in Copenhagen. In this study, the focus of the investigation is not the adoptees' families but the adoptees themselves. Therefore, we call it the Adoptees Study. It follows a research plan that has been used in the past to assess the relative contributions of heredity and environment to an abnormal or socially undesirable characteristic, namely alcoholism (Roe, 1945).

In our second study, the starting point is not the 5,483 adoptees but their approximately 11,000 biological parents. Since about one fourth of the biological fathers could not be satisfactorily identified, we began with somewhat less than 10,000 biological parents. Among them were more mothers than fathers. A search was conducted to see who among these parents had a file in the Psychiatric Register. The hospital records of each such parent were reviewed by a psychiatrist who filled out a form with the following information: the place, dates and discharge diagnosis for each hospitalization; the behavior leading to the first admission, the major features of the life history and the premorbid personality, the precipitating factors, the major features noted at the first admission, additional major symptoms noted in later admissions, the clinical course and outcome, and the psychiatrist's own summary diagnosis. This completed form was then reviewed independently by Dr. Wender and myself. Dr. Kety independently reviewed some of the forms as well when he was still at the NIMH. If we agreed that the parent's diagnosis belonged in our spectrum of schizophrenic disorders, or was a clearcut or possible case of manic-depressive psychosis, the adopted-away child of that parent was chosen as an index case. From among the remaining adoptees, we chose as controls those whose both biological parents had no known psychiatric history; i.e., neither parent had a file in the Psychiatric Register. Controls were matched to the index cases for sex, age, age at transfer to the adopting family, and the socioeconomic status of the adopting family.

The index and control subjects were invited to participate in a study of the relationship between environment and health. Those who refused are currently being assessed for psychopathology through the use of records, a personal interview by a psychiatrist at the subject's home, or through some minimal personal contact. The refusal rates were 21.1% and 21.4% for the index and control groups respectively. Thus, we were able to achieve almost 80% cooperation, an acceptable figure, and the two groups did not differ in this respect.

Although all cooperating subjects have now been examined, the data on some subjects have not yet been processed. At this time, we are able to report on 76 index cases and 67 controls. Only a handful of the total cases are not accounted for in this summary. All subjects were given a semi-structured psychiatric interview that lasted from about 3 to 5 hours. The interviews were all conducted by Dr. Joseph Welner, except during a brief period of illness, when Dr. Fini Schulsinger carried on for him. Each subject also had one and a half days of psychological testing, but we will not be able to present the test findings now. The examinations of all subjects spanned a period of 4 years.

The selection and processing of subjects were carried out in such a way that none of the examiners knew if the subject before him was an index or control case. Even the interviewing psychiatrist could be kept blind in this respect since the subject, except in a few instances, had no knowledge about his biological parents or the possibility that they had a mental illness. When the subject discussed his family, he was talking about his adoptive family, but his index or control status depended on his biological family. Thus, if the psychiatrist had a bias in favor of either the genetic or behavioral variable, he could not be influenced in his diagnosis so as to systematically favor one group or the other, wittingly or unwittingly.

Since age was one of the matching variables, the index and control groups had approximately the same mean age, 32.51 years and 32.74 years for the two groups respectively. The age range for the entire sample was from 20 to 52. Thus, the average subject had lived through more than half the age of risk, but an appreciable risk for schizophrenia still remained.

Age at transfer to the adopting family was another matching variable. The transfer age varied between 5 days and 48 months. The median transfer age was 5.9 months for the index cases and 5.75 months for the controls. We are able to compare the pretransfer histories of the two groups in several ways, and will do so in the future.

Of the 76 index parents, 50 were mothers and 26 were fathers. The fact that more schizophrenic women than men have children is well-known, and this finding is not surprising. Part of the reduced rate for fathers is accounted for by the loss that we had noted earlier of about one-fourth of all biological fathers.

The findings of the Adoptees Study parallel those of the Family Study in several important respects. Foremost is the finding in each study of support for the belief that heredity contributes to the development of schizophrenic disorders. Another point bears on the value of including the spectrum of disorders in such studies. Among all our 76 index adoptees, only one, or 1.3%, had ever been hospitalized for schizophrenia. Thus again, if we had relied only on hardcore, process cases, we would have found no significant difference between our index and control subjects. The low rate for such process schizophrenia is also consistent with the low rates obtained in the Family Study. And with regard to the spectrum itself, we found no spectrum diagnoses among the offspring of the four parents who had reactive schizophrenia. Again, the *n* is too small to pass judgment, but the finding is consistent with the finding in the Family Study of no spectrum diagnoses among 30 biological relatives of 7 reactive schizophrenics.

Finally, I would like to say that we have been carrying out other studies that employ other research strategies in which we separate the genetic and rearing variables in different ways. The accumulation and analysis of data in these studies has been a slow, long process, but we expect to begin our reports about them in the coming year.

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12

GENETIC AND ENVIRONMENTAL INFLUENCES ON CRIMINALITY IN DENMARK

BARRY HUTCHINGS, M.PH.
SARNOFF A. MEDNICK, PH.D.

Utilizing the same adoptee files as described in the previous chapter, the following NIMH-supported study also attempts to shed light on the nature-nurture question as related to human behavior. In this study the behavior of concern is registered adult criminality in men adopted very early in life. The study asks whether the registered criminality in their biological or adoptive fathers is higher than would be expected.

This study concerns a group of men who were adopted early in life and who subsequently became criminals. We ask whether the rates of criminality in their biological fathers and adoptive fathers exceed the rates in appropriate controls. Since the criminal adoptees had almost no contact with their biological fathers subsequent to conception, similarities between them must be mainly ascribed to genetic factors. Since the adoptive fathers and the criminal adoptees do not (especially) share genes, similarities between *them* must be mainly ascribed to environmental factors.

Kety, Rosenthal, Wender, and Schulsinger, with the support of contracts between Copenhagen's Psykologisk Institut and the U.S. Public Health Service, established a file of 5,483 adoptees encompassing all nonfamilial adoptions in the city and county of Copenhagen between 1924 and 1947. The study being reported here centered on the 1,145 male adoptees in this file who were born between January 1, 1927, and December 31, 1941. Thus, the ages of the adoptees lay between 30 and 44 years of age at the time their criminality was ascertained in 1971. The sample has passed through the greater part of the risk period for criminality, especially for the registration of a first offense.

For comparison purposes, the 1,145 adoptees were matched individually to a group of nonadoptees for sex, age, occupational status of their father and residence (using old census lists). The 1,145 adoptees and the nonadopted controls were then checked for registration for criminality through the files of the National Police Register in Copenhagen. For purposes of this study an individual is defined as *criminal* if he has at least once been convicted of a violation of the Danish Criminal Code and is so listed in the National Police Register. The distribution of these two groups in the police files is given in figure 1. As can be seen, 16.2% or 185 of the adoptees have been convicted at least once for an indictable offense. Registration for criminality is markedly (and significantly) more common among the adoptees than among their controls.

The adoptive and biological fathers of the adoptees and their matched nonadopted controls were now checked through the police files. The distribution of these fathers in the police files is given in figure 2.

Note that the rates of criminality of the adoptive fathers and nonadoptive control fathers are almost identical. The biological fathers, however, evidence almost three times these rates of criminality.

For all of the 1,145 biological, 1,145 adoptive and 1,145 nonadopted control fathers the rates of registered criminality as a function of their sons' criminality is given in figure 3. The degree of association between fathers' and sons' registered criminality was evaluated by chi-square and was found to be significant for each of the three father-son relationships.

This association between sons' and fathers' criminality suggests the existence of both genetic and environmental factors in the etiology of registered criminality.

In order to guard against the possibility that a variable (such as social class) correlated with criminality was partly responsible for the pattern of reported findings, a control group of adoptees drawn from those not known to the police was matched to the criminal adoptee group for age and the social class of the adoptive father. In addition, subjects were excluded from the group of criminal adoptees or their controls in those cases where the biological father was not identifiable or where the biological or adoptive father was born before 1890. (The police records are less reliable for individuals born before 1890.) These procedures gave us two groups of 143 adoptees each, one group criminal and the control group not known to the police. Table 1 presents identifying information on these two groups. As can be seen from the ages of first transfer to the adoptive homes, the amount of possible contact between the adoptee and his biological father was minimal. Actually, in almost all cases it was nonexistent.

FIGURE 1

POLICE RECORDS OF ADOPTEES AND MATCHED NON ADOPTED CONTROLS

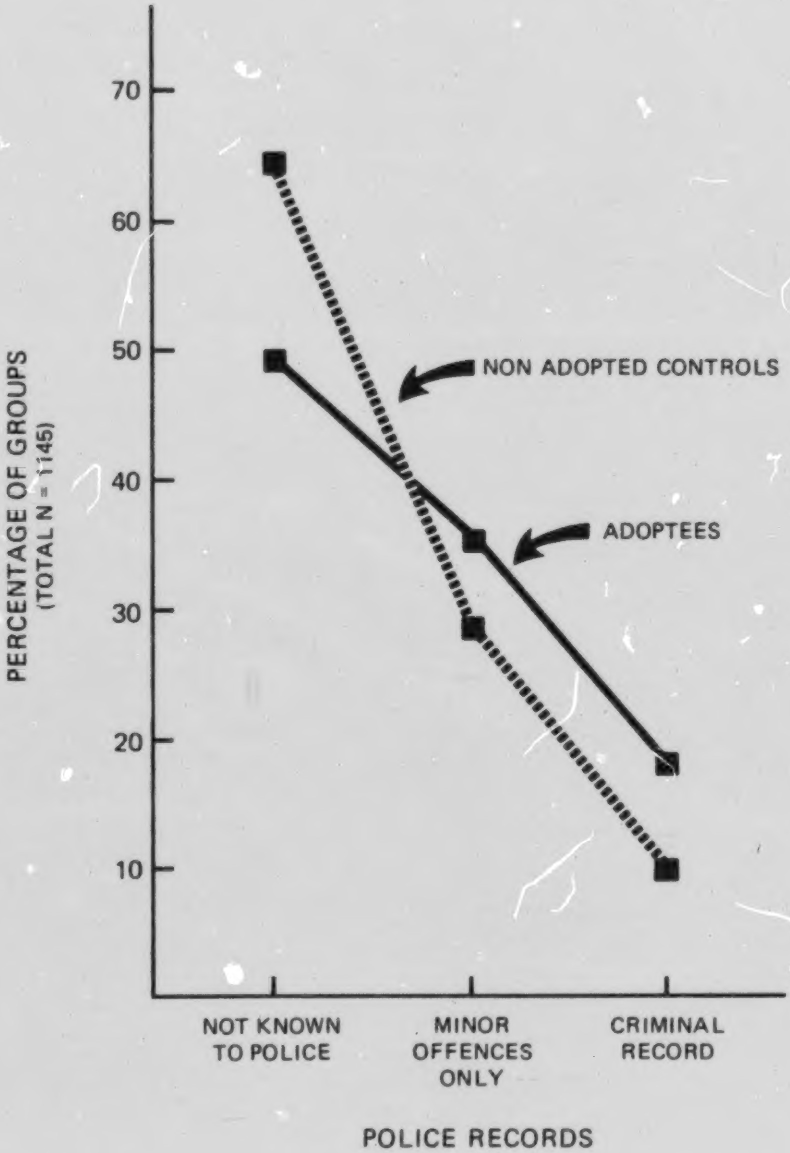


FIGURE 2

POLICE RECORDS OF ADOPTIVE AND BIOLOGICAL FATHERS OF 1145 ADOPTEES AND FATHERS OF MATCHED NON ADOPTED CONTROLS

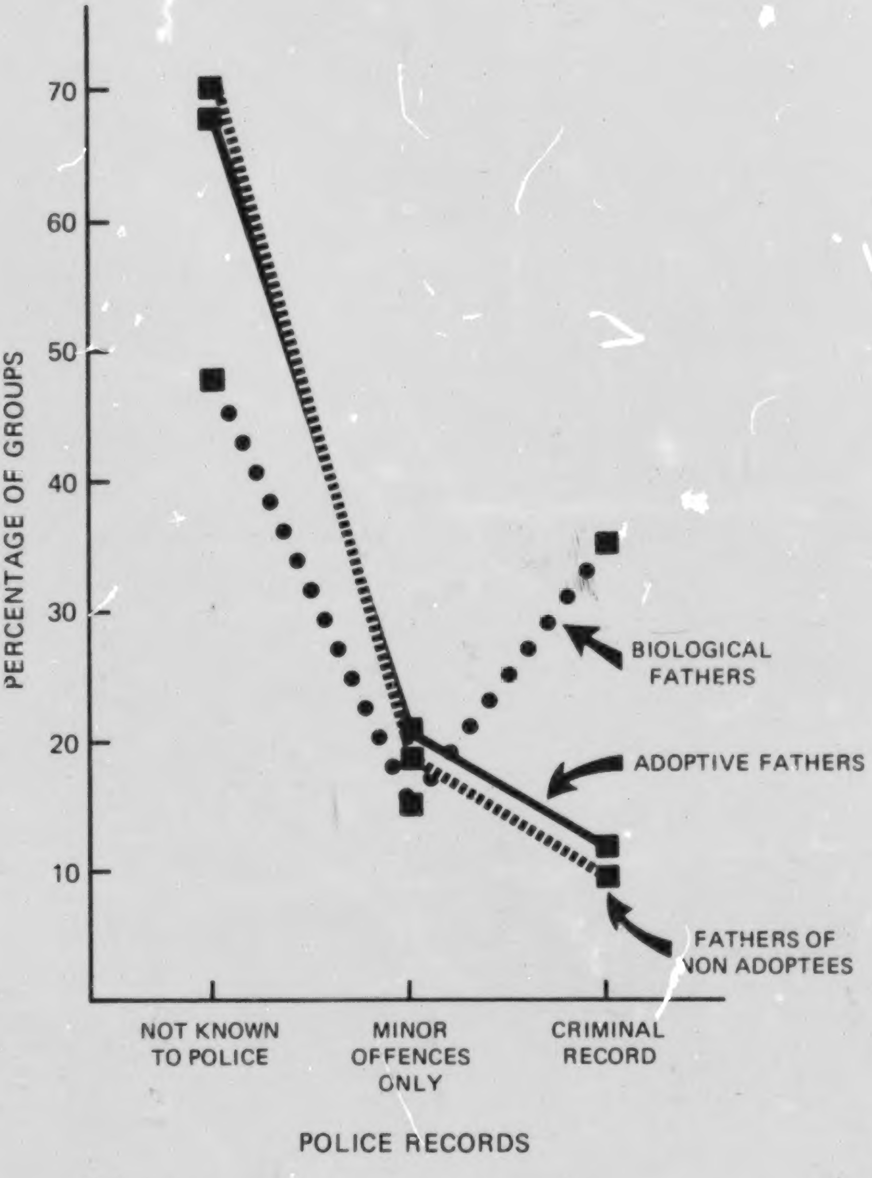
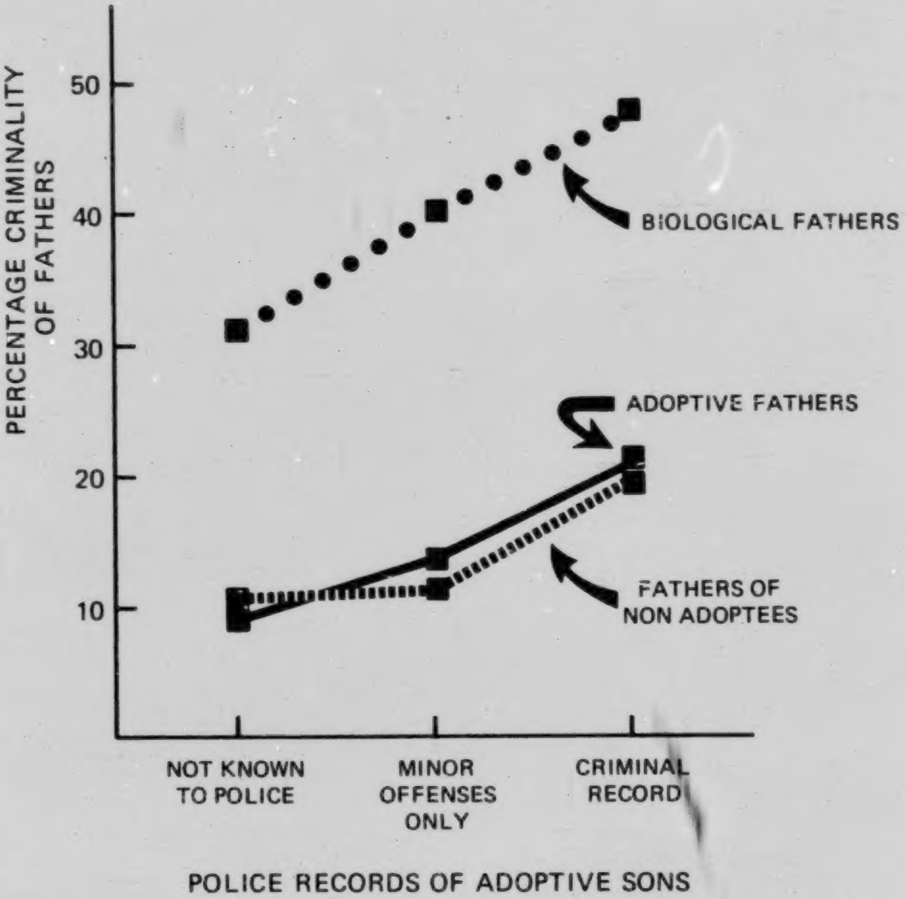


FIGURE 3

POLICE RECORDS OF
ADOPTIVE AND BIOLOGICAL FATHERS
AND ADOPTIVE SONS



We tabulated the criminality of the biological and adoptive fathers of the 143 criminal and 143 noncriminal adoptees. These data are plotted in figure 4. As can be seen, both the biological and adoptive fathers of the criminal adoptees have a higher rate of criminality than the fathers of the control adoptees. We can conclude that (within the limitations of the adoption methodology) there is an association between the criminality of a male rearing agent and the criminality of his son. We can also conclude

TABLE 1.–Mean Characteristics of Index Adoptees (Criminal Probands) and Their Matched Control Adoptees (Noncriminal Probands)

Mean characteristic	*Index adoptees (criminal probands) (n = 143)*	*Control adoptees (noncriminal probands) (n = 143)*
Occupational status of adoptive father	2.3	2.4
Occupational status of biological father	1.7	2.1
Age on 1st January 1971	35.3 yr.	35.3 yr.
Age at birth of the child of		
Adoptive mother	30.8 yr.	31.6 yr.
Adoptive father	32.5 yr.	33.6 yr.
Biological mother	23.3 yr.	23.6 yr.
Biological father	26.1 yr.	27.9 yr.
Age at 1st transfer to adoptive home (median)	6 mth.	7 mth.
Age at legal adoption (median)	19 mth.	16 mth.
Income of adoptive father	DKr. 4290	DKr. 4387
Fortune of adoptive father	DKr. 2065	DKr. 1848

that there is an association between the criminality of a biological father and the criminality of his son.

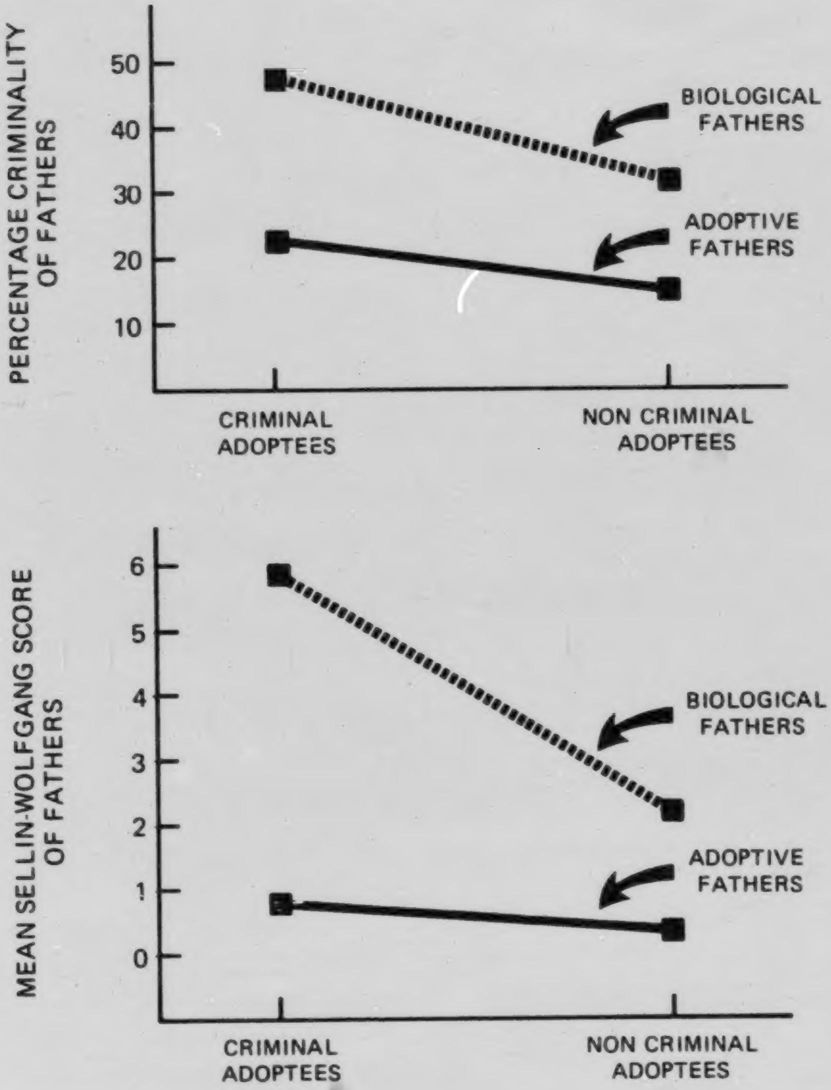
When the criminal adoptees are graded in terms of the severity of their criminality, concordance rates for both the adoptive and biological fathers are positively associated with increasing severity. The more recidivistic, the more jail experience, and the earlier the start of the criminal career of the adopted sons, the greater the probability that the adoptive and biological fathers will be criminal and the more severe their criminality.

While there are few adoptive or biological mothers who are registered as criminals, their data are, proportionately, in excellent agreement with those of the fathers.

In the material so far presented we have taken the criminal status of the son as our independent variable and observed the contingent variation of the criminality of the biological and adoptive fathers. We can also turn this situation around and consider the criminal status of the adoptive and biological fathers as our independent variable. This is more likely to accord with the possible causative sequence. It also begins to suggest some exploratory cross fostering analyses. In this analysis we examined the likelihood of criminality in the adoptve son under the four

FIGURE 4

REGISTERED CRIMINALITY OF ADOPTIVE AND BIOLOGICAL FATHERS OF CRIMINAL AND NON CRIMINAL PROBAND ADOPTEES



possible combinations of criminality and noncriminality in the adoptive and biological fathers.

1. If both adoptive and biological fathers were noncriminal, 10.4 percent of their sons became criminal. We will consider this our basal percentage.

2. If the adoptive father was criminal but the biological father was not criminal, 11.2 percent of the sons became criminal. This percentage is not significantly different from the basal percentage.

3. If the biological father was criminal and the adoptive father was not criminal 21 percent of the sons became criminal. This percentage is highly significantly different from the basis percentage.

4. If both biological and adoptive fathers were criminal 36.2 percent of the sons became criminal. This percentage is significantly different from the basal percentage. It can be seen that analyzed this way the data suggest that the hereditary effect is more important than the environmental effect.

Up to this point a number of variables believed to be of relevance in the determination of criminal behavior have been examined independently. Two questions stimulated the analyses reported in the following section: (a) What is the *combined* effect of the several independent variables believed to be of relevance? and (b) Are different types of criminality differently determined?

The traditional way of attacking the first of these questions would be to combine several variables in "n-way" contingency tables. This is somewhat unsatisfactory. In the first place, examination of more than two or three predictors in such a manner

TABLE 2.—Cross-Fostering analysis: Percent criminality in adoptees as a function of criminality in biological and adoptive fathers

		Biological father, criminal	
		Yes	*No*
Adoptive Father	Yes	36.2%	11.2%
Criminal	No	21.0%	10.4%

Notes:

1. The data suggest an interaction effect. Where the biological father is a criminal the criminality of the adoptive father is significantly related to the criminality of the adoptive son. If the biological father is not criminal, the criminality of the adoptive father is not related to the criminality in the adoptive son.

2. For this analysis minor offenders were not included.

requires prohibitive numbers of cases, certainly more than are available in the present design. But basically the problem is that of spuriousness. To what extent does the effect of A on X disappear when the effect of B on X is taken into consideration? Such questions are best answered by the use of techniques such as multiple regression. These analyses enable one to measure the relation of various variables and to determine the functional dependence of criminality upon a set of factors. They should avoid the risk of explaining the same variance several times and of giving the exaggerated impression of relationships which can arise from tabular analyses.

The independent variables were coded as contrasts with a value of 1 signifying the presence of a particular factor, such as a criminal or psychiatric diagnosis, and 0 as its absence. The following variables were included to predict the criminality of the adoptee:

Criminal record and psychiatric hospitalization in biological or adoptive mother or father, social class, and several of the more promising interactions. The data for 143 noncriminal control and 143 criminal adoptees were subjected to a multiple regression analysis.

The three factors which contributed significantly to the regression analysis were (and chosen in this order):

1. Criminality in at least one *biological* parent.
2. Criminality in at least one *adoptive* parent.
3. Psychiatric diagnosis for the biological mother.

The conclusion can be stated that the criminality of the biological parents and of the adoptive parents together with the mental illness of the biological mother make contributions to the criminality of the child even when the partial correlations of these variables amongst themselves have been taken into consideration.

When the indices of criminality were subjected to a factor analysis, two factors were extracted which together accounted for about 70% of the variance. Factor 1 is loaded heavily on theft, property damage, multiple offenses, number of offenses and a relatively early start to the criminal career. It would seem to be a fairly general factor describing typical nonviolent criminality. Factor 2 is clearly a factor correlated with offenses against the person. The high loading on injuries to the victim contrasts with the low loading on thefts and property damage. The high positive loadings on the ages at first and last offenses indicate that these are crimes occurring fairly late in life.

When the regression analysis and the factor analysis were subjected to a split-half replication they both turned out to be reasonably stable. In addition the two factors obtained in the factor analysis were separately regressed on the independent variables of the regression analysis in order to pose the question whether the different aspects of criminality were differently determined. This latter analysis was not very clear in result and proved totally unstable when subjected to a split-half replication.

Within the limits of the adoption methodology there appears to be a correlation between criminality in adoptees and criminality in their biological parents. The most important limit of the adoption method is the possibility that the adoption agency attempts to promote correspondence between the adoptive home and the characteristics of the biological parents. Indeed, in this study we noted a significant correspondence in the social classes of the biological and adoptive fathers. The Danish organization which arranged the adoptions examined in this study states clearly that they do aim at matching in certain respects. Since the hallmark of the adoptive method is the separation of genetic and environmental influences this matching is a serious problem for the researcher.

We can mention two facts that may mitigate the difficulties:

1. If in this sample the adoption agency had been matching some characteristics which relate to criminality, then we would expect a relatively large number of adoptees with both criminal biological and criminal adoptive fathers. Allowing for unidentifiable fathers if chance factors only were operating and given the rates of criminality among the biological and adoptive fathers, we would expect 55 cases matching biological and adoptive fathers for criminality. Our obtained number was 58. Any matching which may have been attempted did not express itself directly in registration for crime of fathers.

2. The best of adoption agencies will not be perfect. Even if they were somewhat more successful in matching for criminality there would still be some cases which did *not* match. These could be used in a cross fostering analysis. In the present paper this type of analysis suggested the existence of a relationship between criminality in the biological father and adopted son.

It is worth restating that the operational definition of criminal behavior used here is that of detected, apprehended and registered acts defined by the Danish society as worthy of police and judicial action. The extent to which it is also a social definition is debatable; the extent to which it is a biological definition is even more doubtful.

One final point. In considering whether or how these results obtained in Copenhagen, Denmark can be extrapolated to other national settings, one consideration should be borne in mind. The laboratory experimenter in behavior genetics reduces the variance ascribable to environmental influences when he wishes to explore the effects of strain differences. As environmental variance increases, the strain difference effects become more and more masked. While operating in a narrower range than is available to the laboratory researcher, the extent of variability of a natural, human research environment (in our case, Denmark) will also influence the strength which genetic factors will exhibit. We would suggest that the amount of variability in Denmark for almost any dimension will be less than that of a country like the United States. It follows, then, that in practical terms extrapolation of our Danish findings to other national situations must be conducted with great caution. To be perfectly plain and blunt, we do not believe that our findings should or could be used to explain crime in the United States.

13

PSYCHOSES IN CROATIA, YUGOSLAVIA[1]

PAUL V. LEMKAU, M.D.

To discover the cause of a disease it is sometimes necessary to examine an area where the disease occurs in unusually high numbers. This is apparently the case for psychoses in parts of Croatia, Yugoslavia. The following research was begun there in 1959 and was supported in large part by dollar grants and excess foreign currency grants from NIMH. It was carried out by the staff of the Andrija Stampar School of Public Health in Zagreb in collaboration with the author.

This study was designed to test the hypothesis that a particular area within Croatia gave rise to a larger number of schizophrenic psychoses than the rest of the country. The hypothesis had its basis in a century-old belief that it was true and that this belief was held by a significant number of psychiatrists in Yugoslavia. No specific cause was suggested, though almost innumerable speculations existed.

The research has had four major phases:

1. After an initial exploratory and planning period, the cheapest and most direct preliminary study appeared to be of patients hospitalized in psychiatric hospitals. Extracting for the reported discharges of all hospitalized patients, those having psychoses and in psychiatric institutions were determined, along with their community of origin. In the process of obtaining this information, a psychiatric register for Croatia was set up, and a census of all

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[1] Brief portions adapted with permission from Crocetti, C. M.; Lemkau, P. V.; Kulcar, Z.; and Kesic, B. Selected aspects of the epidemiology of psychoses in Croatia, Yugoslavia. III. The cluster sample and the results of the pilot survey. *American Journal of Epidemiology*, 94:2, 126-134, 1971. Further reproduction prohibited without permission of copyright holder.

patients hospitalized as of a particular day was made. From these data, all psychotic patients were listed.

This study showed that the hypothesis was supported in that rates of hospitalized prevalence were roughly twice as high for the study area as for the rest of Croatia. However, the finding was not exclusively true of schizophrenia. All other psychoses were also elevated in the study area.

Obviously, hospitalized psychotic patients do not represent all such patients in the community. It was conceivable that differences in rates of hospitalization were responsible for the observed differences rather than differences in rate of occurrence of disease. Recognition of this factor led to the development of phase 2 of the study.

2. Several communities were selected for house to house interview canvasses to find previously unknown cases of psychoses. This developed into a two stage procedure. First specially trained (by the project staff) third and fourth year (Yugoslav) medical students were trained to interview a member of each household with the aim of discovering any member of the household justifying the suspicion that a psychosis was present. These suspects were then examined by psychiatrists to determine finally whether a psychosis was present and what general class of mental illness it represented.

This method was subjected to several tests of reliability. The principal concern was that positive cases would be finally lost if not identified as suspects. The full report indicates that few cases escaped the screen. Reliability studies were also carried out on the quality of work of various subgroupings of interviewers and of the psychiatrists. Eventually, a controlled number of interviewees, not designated as "suspects," were deliberately passed through the interviewing sieve to the psychiatrists for examination as a further check on the likelihood of missing cases at the screening level.

Manuals and methods of operation were written and used in training of field workers so that methods could remain stable over the period in which they were used.

In this phase of the study the communities of Labin (study area), Trogir, Sinj and Kutina-Popovaca were surveyed. The results supported the hypothesis in that the community in the study area showed higher prevalence rates for psychoses than did those not in the study area.

The problem then remained as to whether the communities used in these pilot studies were representative of the two areas. This question could not be answered and the next phase of the study was designed to clarify the issue.

3. Mathematical statisticians were added to the staff to design a

cluster sample representative of the study and control areas. After this sample was drawn, interruption of financing made it necessary to use only 22 (of 200 projected) clusters located in the cities of Rijeka and Zagreb. These were treated as a pilot test for the new procedures involving less than 100% samples. The data were analysed and again supported the hypothesis but could not lead to conclusive proof.

With the resumption of funding it became possible to undertake the final step of the project.

4. A cluster sample representing both the study and control areas (study area and all of Croatia) was redrawn. Methodology for this procedure and for developing field operations was complex. Interviewing took place in 1969 and 1970, after which the data was transcribed for complete analysis.

The analysis has again supported the hypothesis and has contributed other information relating the findings to age, migrating status, general health, smoking practices, family size, geographic position in relation to the sea, etc., including psychiatric diagnosis.

There remain much data unanalysed which could contribute to study of hypotheses which might explain the findings of the study. A further systematic analysis of the nature of the differences between Rijeka and Zagreb was precluded by the small number of comparable cases that would result from further subdivision. However, a comparison of the absolute number of cases in the two communities in terms of a variety of factors may be suggestive. The assumption is that comparisons that show unusually high differences in the characteristics of the psychotics may be fruitful avenues of investigation when additional data are available.

The comparison that showed the most striking difference in characteristics of psychotics from the two communities was the larger number of manic-depressive females in the indigenous population of Rijeka. There were three times as many women with this diagnosis in Rijeka as in Zagreb. Additional, though less striking, differences between psychotics in the two communities appear in marital status, living arrangements, and educational and occupational level.

The type of disorders that account for the differences between the two communities—"functional" psychosis with a disproportionate number of female manic-depressives—and the differences in characteristics between the patients from the two areas are suggestive of the existence of some basic difference between them in the social-psychological sphere. On the other hand, the fact that the difference in rates is most noticeable in the indigenous populations would be consistent with possible genetic and/or nutritional differences. However, with equal logic it might be advanced that the tumultuous social history of the study area and its substantial out-migration might have resulted in selective depletion of the healthier personalities in the remaining population. None of these possible and purely speculative notions are necessarily mutually exclusive nor necessarily solely responsible for the observed differences between two communities. They are simply tenuous guesses that may possibly influence the type of data to be gathered in future work.

In addition to testing the basic hypothesis regarding differential rates for psychoses in different parts of Croatia and attempting to shed light on the causes of the psychoses by examining important variables, this study has had several other benefits. Some of these are as follows:

1. Collaboration has been established in Yugoslavia between mathematical statisticians, epidemiologists, social psychologists, psychiatrists, health officers, regional hospital administrators, local health officers and others. Many of these relationships are new, though some existed before this study began. In addition, working relationships between the Andrija Stampar School of Public Health and the University of Zagreb Department of Neurology and Psychiatry, have been enriched and extended. Both Dr. Lopasic and Dr. Nikola Percic, former and present professors, have been intimately involved with the study. Dr. Rogina, Director of Vrapce Mental Hospital, has been most active and, through contributing the time of his staff, has furthered their education in community psychiatry and in research methodology. During the course of the research, Dr. Rogina has been appointed a professor in the university. Many other similar relationships have been established, these high-level ones being cited as examples.

2. Leaders of local psychiatric hospitals and services have been stimulated to carry out research and service programs of their own. Three proposals for such research are now pending, one to investigate genetic hypotheses on the Island of Krk which includes an indigenous population of long standing. This is proposed by Dr. Cuk of Rijeka. The second is to investigate a tentative conclusion that schizophrenia responds better to treatment in Dalmatia than is the case elsewhere. This proposal is by Dr. Uglesic of Split. Dr. Dragonov of Popovaca proposes a study of the economics of the early and late recognition of chronic psychiatric cases in community clinics. These projects are so designed that they can contribute to the determination of incidence rather than prevalence rates for mental illnesses in the Croatian population.

3. A large number, over 150, young medical men and women have had training and first hand experience in social-psychiatric technics in research and into the services available for psychiatric patients. Some of these people began as interviewers, moved to the role of supervisor and then to positions of considerable responsibility in the research team. In particular, Dr. Luka Kovacic has, through his training and experience, become an accomplished planner and administrator of field epidemiologic studies.

4. Local health officers have received stimulation to do local research and to invent new ways of getting service for the psychiatric patients in their medical care loads. They have also had the opportunity to obtain data on local epidemiologic problems other than obviously psychiatric ones, such as smoking habits, emphysema, urinary stone, and gastrointestinal ulcer. They have, furthermore, had the opportunity of observing and helping solve the problems arising in the operation of field psychiatric epidemiological studies.

5. Researches in psychiatric epidemiology have been stimulated in Serbia, where an extensive investigation of the effect of acute industrialization on rates of neurotic illness involving populations changing from agricultural to industrial employment. Field epidemiological research has also been stimulated in Bosnia-Herzogovina, though none are as yet underway.

6. A Croatian psychiatric register has been established and, hopefully, has become a permanent part of recordkeeping in the Croatian Institute of Public Health and in other official agencies. This register is presently furnishing data for comparison with that of registers in the United States, the research being carried out by Dr. Kulcar and Dr. Gorwitz, the latter of Michigan.

7. Services to psychiatric patients in Croatia have been improved. This has been accomplished, in general, through the stimulation of personnel already noted. In addition, new services have been introduced. The relationship of these services to the research venture is, of course, by no means an exclusive one; many other factors must have contributed. Nevertheless, it is likely that a relationship of increased interest and stimulation to action by Yugoslav colleagues found some of its source in the study reported here.

The psychiatric service at Sinj has a clear listing of all psychiatric cases over a long period of time (± 5 years) which will give valid incidence data and information on the course of illnesses occurring there.

The psychiatric services connected with the University Hospital in Rijeka have established extensive outpatient services, including child psychiatric services and services to juvenile delinquents.

The Health Department of the Commune of Rijeka has compiled most interesting data on psychiatric services to persons on the Island of Krk for a period covering decades.

The psychiatrists of regional hospitals are serving local health departments more thoroughly and efficiently because of friendly relationships developed during the course of the study's field work. This is particularly true of the Popovaca-Kutina area, one in which industrialization is going forward very rapidly secondary to the discovery of oil in the area.

Vrapce and Yankomir Hospitals have established home- and foster-care services for selected patients.

The Regional Health Department of Pula has taken up the problems of drug abuse, venereal disease, and suicide as parts of a new grouping of illnesses labeled "social illnesses."

14

AN AUTOMATED PSYCHIATRIC CASE REGISTER IN YUGOSLAVIA

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Psychiatric case registers have been found useful for ascertaining the incidence of mental diseases and for determining epidemiology and outcomes. The following describes such a case register, currently being automated under an NIMH excess foreign currency grant.

Case registers or data banks for individuals with specific illness conditions have been maintained for some time by many cities, provinces (states), and countries. Examples of this can be found readily, for example, in tuberculosis, the venereal diseases, rheumatic fever, and malignant neoplasms. In areas where such data banks exist, they are based on reporting to a central authority of all individuals with these diseases whether or not they have received treatment services.

Data banks for individuals treated for mental disturbances are limited to specified facilities, are of much more recent origin, and are presently in existence only in a limited number of areas. One of the earliest was maintained from 1939 to 1944 by Dr. Johan Bremer, a psychiatrist, for an isolated fishing village off the west coast of Northern Norway (Bremer 1951). He observed some mental disorders in nearly 20 percent of the 1,325 residents; however, 92.7 percent of these were nonpsychotic. That is, he encountered nineteen psychotics during this 5-year period. Registers were subsequently established in a number of other areas (i.e., Aberdeen, Scotland and Camberwell, England).

In the United States, the concept of psychiatric case registers has received NIMH support since 1947 (NIMH 1949). Despite this support, a comprehensive register was not established until 1961 (by the Maryland Department of Mental Hygiene). It encompassed the entire State with a current population of more than 4 million, and has been based on routine standardized reporting from virtually all public and private inpatient and outpatient facilities providing psychiatric services to State residents. A comprehensive register was also established about this time in Monroe County (Rochester), New York. This included reporting on patients seen by psychiatrists in private practice. Findings from both have been extensively reported in the literature (Gardner et al. 1963, 1964; Gorwitz et al. 1970; Klee et al. 1967).

A register of all alcoholics and psychotics treated in Croatia has been maintained manually since 1963 by the Department of Chronic Diseases, Institute of Public Health of Croatia in cooperation with the Department of Statistics at the Vrapce Mental Hospital (Zagreb). Approximately 30,000 individuals have been identified as under care in the intervening period, or about 1 percent of Croatia's population 15 years of age or older.

Croatia, one of the six republics in Yugoslavia, has a population of 4.5 million. It has 5 mental hospitals and 19 psychiatric units in general hospitals. Currently there are approximately 3,500 beds and 160 physicians in these facilities. Many of these, as in the United States, are occupied by chronic schizophrenics who have been hospitalized for extended time periods. A number of psychiatric-epidemiological studies have been carried out in Croatia in recent years, supported primarily by funds from the National Institute of Mental Health. One of these is described in the previous chapter.

The register, as originally established in 1963, was quite limited in the number of individuals included and in the amount of information collected. Because of this, it was quite feasible to maintain it manually and to prepare basic tabulations. However, the number of persons in the register and the amount of information on each have both expanded rapidly. As a result, these manual procedures have become increasingly inefficient and ineffective.

It was therefore recognized by 1969 that conversion to computer operations was essential for efficient maintenance of the register. This change, it was believed, had four clear, major advantages over the then existing method of operations: (1) admission and under-care rates could be computed for various defined cohorts (i.e., age, sex, place of residence) through a link with the computer tape which will be available from the March 1971 census of the population, (2) the register could be routinely cleared, through a comparison with death records, of all individuals known to have died while under care or after release and return to the community. This would enable the staff to compute age-specific mortality rates and to construct life tables for various patient cohorts and to relate these with comparable data for various segments of the general population. This death clearance would also be an important, necessary step for determining the risk of further care during specified time periods for certain categories of released patients; (3) a specified sample with defined characteristics could be selected and used as the basis for community-centered followup studies; (4) it would greatly simplify studies involving a comparison of data with other psychiatric case registers.

The principal author of this article directed the Maryland Psychiatric Case Register from its inception until November 1970. Because of this, he was invited in 1970 to visit Croatia and to make recommendations regarding register maintenance and utilization of output for special research studies. He traveled extensively throughout Croatia and reviewed the program and its possible implications with a large number of concerned individuals. Based on these observations, he supported the concept of a computerized register and reached agreement on a number of possible projects which could have practical implications for both countries.

In early 1971, as a result of this visit, a grant application for foreign currency support was filed with the National Institute of Mental Health (Use of Automated Registers for Followup Studies). This application was approved and funded during the same year. Dr. Zivko Kulcar, director of the Division of Chronic Diseases at the Institute of Public Health of Croatia, was named principal investigator. Dr. Vlado Rogina, medical director of the Vrapce Mental Hospital, has served as co-principal investigator. The author was selected as U.S. project officer.

The Republic of Croatia has a computer center located in Zagreb, its capital, which utilizes IBM 360 equipment. It is compatible with the computer resources of the Maryland and Monroe County registers. Its programming and systems staff have been actively engaged in the conversion and subsequent maintenance of the register. Close coordination has been developed between them and project staff.

The grant received from NIMH also called for the development of a series of community centered, followup studies based on data from the case register. The first of these is currently underway and consists of a cohort of individuals who were hospitalized for schizophrenia during 1963 and 1964. Some were admitted during this period while others were initially hospitalized earlier. Those selected for inclusion in this study have been divided into the following four groups on the basis of their current status: (1) dead, (2) hospitalized continuously, (3) now hospitalized but released at some time during the intervening period, (4) released and presently in the community.

The study will seek to determine how the interaction of defined factors related to the patient, his family, his community and available health resources have affected the course of illness and present levels of functioning. While this part of the project will involve the completion of survey forms on each person in the project by members of the field study unit, selected individuals from this cohort of former patients will also be examined by psychiatric consultants in order to evaluate the current level of psychotic symptoms.

The first phase has involved the selection of an appropriate cohort and determination of the current status of each individual included. This required checking through register files and death records as well as some initial community inquiry. At the same time, register staff has worked with its Expert Committee in the design of questionnaire forms and in the selection of items to be included for inquiry. This has been completed and field tested with the actual collection of data ready to commence. Details for the proposed psychiatric examinations are also being collected.

Emphases will be on the former patient's level of functioning in relationship to his family, his peers, and his community. Data will focus on the extent and variety of participation in defined activities and factors which contribute(d) to this involvement. In addition to availability of specified resources, this will relate to attitude and understanding of the patient by himself, his family and his community. These factors will be considered in the context of the preceding, known medical history.

All data collection will be completed by the end of the third year with tabulations prepared during the fourth. Analysis and evaluation, with the possible participation and assistance from a variety of consultants, will be carried out during the fourth and fifth year.

The computerization of the register will, for the first time, enable its staff and associates to fully utilize this research tool. This will provide data on (1) sequence and pattern of services for various cohorts, (2) rate of mortality and probability of survivorship, (3) length of total hospitalization for individuals having multiple inpatient care episodes, and (4) comparative admission and under-care rates for various population groups and between various registers.

In Croatia, as in the United States, schizophrenics account for approximately half of all resident patients and one-sixth of all admissions. Long-term schizophrenics (those hospitalized continuously for 5 years or more) occupy between one-fourth and one-third of all psychiatric beds. These patients constitute a tremendous drain on the limited financial and personnel resources of these facilities. In the United States, for example, we estimate that there are about 100,000 such patients and their care has already involved an expenditure of about 5 billion dollars.

The proposed study will provide important information on the natural course of the disease and the influence played by varying family, community and health resources. As such, it could assist in reducing length of hospitalization, increasing releases, minimizing the need for readmissions and aiding the former patient's adjustment in the community. It could also reduce the development of chronicity.

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15

SUICIDE IN SCANDINAVIA[1]

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Many studies of suicide have been supported by NIMH in an effort to understand this problem. Cross-cultural studies have been shown to be especially useful in this respect since suicide rates vary considerably from country to country. The following summary of a study on suicide in Scandinavian countries approaches the problem from a psychoanalytic viewpoint and tries to assess why there is such a low suicide rate in Norway when both Denmark and Sweden have such high rates.

Danish and Swedish suicide rates have been among the world's highest, averaging close to 20 suicides per 100,000 population. These rates are equalled by those in Japan, Switzerland, Germany and Austria; however, with the exception of the Japanese rate, the Swedish and Danish rates are the most publicized.

Much of the attention which the high Danish and Swedish suicide rates have received is a consequence of the social welfare measures applied in the two countries. Both inside and outside Sweden and Denmark, opponents of economic planning and social welfare measures have attempted to explain the suicide rate as a consequence of character defects produced by these measures. But the Danish suicide rate has been higher than those of most other European countries for the last hundred years. The Swedish suicide rate has climbed since the turn of the century, and a better case could be made for relating this rise to Sweden's late but fast developing industrial capitalism than can be made for relating it to the relatively recent social welfare measures.

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Inasmuch as Sweden has been successful in dealing with most of the economic problems that plague the rest of the world, it has been felt that her people have "no right" to a high suicide rate. However, it has long been known that countries with much poverty have low suicide rates. One can hardly suggest planned poverty as a cure for suicide. Economic difficulties and problems of survival can suppress psychological conflicts. Only as countries begin to solve the problems of survival are they in a position even to become aware of the psychosocial tensions and conflicts within the culture.

Suicide is but one barometer of social tension; crime, alcoholism, and neurosis are equally barometers, and one such index cannot be consulted without reference to all the others. For example, while the suicide rates for Sweden and Denmark are twice that of the United States, the homicide rate in the United States is ten times that of the Scandinavian countries.

Throughout this century the Danish and Swedish suicide rates have averaged almost three times the strikingly low Norwegian rate—currently 7.5 suicides per 100,000 population. However, if certain social institutions in Sweden and Denmark play a significant role in their high suicide rates, a comparative study of these same institutions in Norway is in order.

Not only the welfare state, but also bad weather and good statistical bureaus have been blamed for the high Danish and Swedish suicide rates. But Norway has equally advanced social welfare measures, equally bad weather and a statistical bureau of comparable accuracy to those of Sweden and Denmark. When the statistical question was discussed in detail with the person in charge of suicide statistics in each of the three countries, we could find no evidence that would support a statistical explanation.

The ratio of about 3 to 1 of suicide rates for Sweden and Denmark as compared with Norway holds true if one breaks down the figures and makes cross-cultural statistical comparisons of urban or rural areas in the respective countries; if one separates the sexes and compares Swedish and Danish men with Norwegian men or Swedish and Danish women with Norwegian women, the same marked preponderance of Swedish and Danish suicides over Norwegian suicides remains evident. The situation is the same when the population is broken up into different age groups or divided on the basis of marital status. The absolute figures, of course, will vary so that, as with modern Western countries in general, the old have higher rates than the young, men higher rates than women, and the divorced higher rates than the married. However, the relative rates or ratios obtained by comparing each of these social and statistical categories with the corresponding group in Norway fall in a general range of between 2.5 and 5 to 1.

Of course, it is easier for suicides to remain unreported in the rural areas of all countries, and countries differ in the proportions of their rural populations. For this reason it was useful to compare the suicide rates for such major cities as Copenhagen, Stockholm and Oslo. An additional advantage of this procedure is that in major cities the routine for dealing with deaths due to suicide tends to be more uniform. The suicide rates for all these cities are higher than for their respective countries (for many reasons apart from statistical accuracy), but the information yielded by comparing them correlates well with that revealed by a comparison of the three countries. The Stockholm and Copenhagen suicide rates are about three times the Oslo rate, just as the rates for Sweden and Denmark are about three times the rate for Norway.

There is still the possibility that even in large cities only the Danish and Swedish doctors tend to report "honestly" because of less social pressure to conceal suicide. Over the past few years I have been informally questioning doctors in the three countries concerning their practice in this regard. While little can as yet be said as to the practice in the rural districts, there is no reason to believe that significant differences exist among the doctors in the major cities.

A similar question is often raised in relation to the Catholic countries which, except for Austria, have very low suicide rates. It is claimed that with more shame attached to suicide in these countries, there is a stronger tendency toward concealment of suicide even among the doctors than there would be in Scandinavia. It is evident, however, that such concealment might affect but will not significantly alter the comparative suicide rates. In a country with a strong religious or moral prohibition against suicide there is likely to be more concealment of suicide, but more importantly there is also likely to be less suicide. Thus the doctor's attitude toward suicide is largely a reflection of the society's attitude toward suicide, and the society's attitude toward suicide has an important bearing on the suicidal rate.

Suicide itself is less taboo in Denmark than it is in the United States, and much less than in Catholic countries. Patients who have made a suicide attempt seem to be less ashamed than are such patients in the United States. The Danish patient may express shame at not having actually completed the act rather than at having made the attempt. His spouse may present some evidence of shame, but the general attitude of those around the patient is more likely to be one of sympathy or pity. Early religious references to suicide as an immoral act do not appear to have a strong hold on people—a fact stressed by an experienced Danish clergyman in a personal communication. Moreover, with so many Danes having relatives or friends who have killed themselves or made suicide attempts, any taboo related to self-destruction is bound to be weakened. Suicide need not be institutionalized, as it is in Japan, in order to become a virtually acceptable expression of unhappiness.

Emphasis has been put on distinctive features in Danish psychosocial character. But it is certainly true that any one of the Danish patterns may also be found in the United States. American patients of English extraction or Puritan heritage tend to exercise rigid control over the expression of aggression. At the same time, however, they discourage feelings of excessive dependency.

Many patients with a southern or eastern European background use the arousal of guilt to express hostility or to enforce compliance with their wishes; but, just as characteristically, they do not suppress aggression as do the Danes. It is apparently a combination of the various traits mentioned that makes Danes liable to attempt suicide rather than to discharge aggression and frustration in some other way.

In summary, the particular Danish vulnerability to the loss of dependency should again be stressed. The most common situation which may precipitate a suicidal act is such a dependency loss through death, separation or divorce, or most often through the deterioration of a personal relationship. Combined with this dependency, and reinforcing it, is the Danish tendency to control and suppress aggression. Moreover, there is the learned familiarity with the use of personal suffering as a technique for arousing guilt in others and insuring desired gratification. The patterned control of aggression and the use of guilt-arousing techniques expedite the use of suicide as a method of dealing with the frustration and anger generated by dependency loss. Mention should be made of the frequency of fantasies concerning gratification after death—a frequency that is consistent with the dependency desires—and of the lesser degree of shame attached to the suicidal act in the Danish culture.

This appraisal does not mean that every social or characterological pattern playing a role in the psychodynamics of suicide in general plays a significant role in Danish suicide. The study of suicidal attempts throws light on particular anxieties and preoccupations of the people in a given country, and it is to be expected that there will be many variations from country to country. It would seem to be significant, for instance, that one particular background factor common elsewhere is rarely observed among the Danes.

The pattern referred to as having little bearing on the Danish suicide rate is organized around performance and competitiveness. If only because of Denmark's proximity to, and previous political control of some districts by, Germany, special attention was paid to the frequently described Germanic overconscientiousness about performance. In line with this pattern, the individual has rather ambitious and rigid expectations of himself and a great deal of aggression is tied up with the achievement of these expectations. Failure of achievement in this kind of culture can be a direct cause of suicidal acts. Likewise, the failure to achieve love will not be interpreted, as in the Danish culture, as an emotional deprivation, but primarily as a poor performance in which the individual gives himself, so to speak, a low mark in love.

It has already been noted that competitiveness and performance do not figure significantly in the fairy tales of Hans Christian Andersen, while in the German folklore the conquest of giants and dragons is crucial, and the winning of the heroine may be more or less incidental. In the light of what has been said about Danish family life, upbringing, and general attitudes, it would not seem surprising that such a performance pattern does not have the same life-and-death meaning in Denmark that it appears to have in Germany and Switzerland and probably in Japan as well.

Although the Danish child experiences a fair share of competition in school, he is not particularly encouraged by his family to be competitive. It is generally understood by both children and adults that no one should stand out too much in any direction. This attitude is by no means unknown among Americans, but it is more intense among the Danes. Anyone violating this rule against conspicuously high performance, whether it be the child in school or the adult at work, is subject to a good deal of envy and dislike.

What is the importance then of the Danish social welfare system in fostering the national attitudes toward competition and dependency? Apparently most of these characteristics antedated the social and economic changes which occurred during the last few decades. What can be said is that the welfare system may reinforce, and provide an outlet for, these qualities and attitudes in the national character, which in turn may be expected to shape the particular form that social change has taken. Governmental concern for the individual gives some permission for the overt expression of the desire to be taken care of. Even the tone of many letters to Danish newspapers indicates a feeling of passively endured injustice, particularly under conditions of economic difficulty, thus reflecting a lesser feeling of responsibility for one's personal destiny than is customary here.

Numerous social welfare agencies provide an opportunity for those who wish to care for the dependent needs of others. On the whole, there is a greater concern in Denmark than in the United States on the part of those administering the help—whether it be medical care or financial aid—with the welfare of everyone. Also, there is an almost universal tendency to feel personally responsible for the suffering of others. In discussing this tendency at a seminar in Copenhagen, one doctor stated by way of illustration (and others agreed) that virtually everyone might feel guilt or responsibility in reading a newspaper account of a deceased man whose body went undiscovered in his room for several days. The general assumption would be that he was lonely, uncared for, and probably without friends. But this is all a far cry from equating the welfare state with suicide. As noted in the first chapter, the Danish suicide rate has been high for a period long antedating the social welfare measures, while despite highly developed social welfare measures the suicide rate in Norway is particularly low.

With its lack of natural resources, it is difficult to visualize Denmark as wealthy under any economic system. Even were Denmark to lean toward more capitalistic practices, there would not be much wealth for her to capitalize. Nor could Denmark be expected to survive in the competitive international economy without a greater degree of internal economic cooperation and planning than is considered necessary here. Both the limited wealth within the country and the high taxes required for social welfare activities restrict the accumulation of wealth by individual Danish families. These limitations have shifted the emphasis toward status and position as sources of prestige. In medicine, for instance, hospital position and rank are considerably more important than they are here. Hence they present an entirely different value for the career and aspirations of the Danish physician, especially since in a country that has not expanded economically and in population as rapidly as ours, the number of top positions is obviously limited.

A consequence of these limitations may have been a lessening of competition. In an effort to improve one's economic situation, individual initiative would have accomplished less here than it might have, for example, in the United States or in Denmark's wealthier neighbor, Sweden.

Thus, although economic life seems more difficult, Denmark has managed to escape some of the pressure of the continuous chase for wealth and material goods that prevails in the rest of the Western world. One can observe within a short time that the pace of life in Copenhagen is slower than that in cities like New York or Stockholm.

Sweden's social, economic, and cultural progress in this century has been a remarkable story, which has led to much envy, resentment, or admiration in the rest of Scandinavia. Her standard of living is higher than that of any other European country, and may be behind only those of the United States and Canada. Even this last difference may be more apparent than real, because it has been more difficult in Sweden than in the United States to accumulate great wealth. On the other hand, there also is less poverty than we have here, and while it may not be possible for the average citizen to become wealthy, the country as a whole is.

Many of Sweden's social, economic and welfare achievements are widely known and well documented. Equally remarkable for a country with only seven million inhabitants is the fact that Swedish literature of the past 80 years is fully comparable to that of any other country in the world during the same period. It is only the limited use of the Swedish language throughout the world that has prevented Swedish literature from becoming more popular.

Despite her political neutralism, Sweden is thoroughly Western in her values. What is regarded as particularly Western—the importance of the individual, his personal freedom, and the feeling that no one is expendable—is based on values that are as strong in Sweden as in any other country in the West. If, for example, the Swedes are building more and more nursery day-care centers for the children of working mothers, they are not motivated by the idea that by separating mother and child they may be able to raise a better state citizen. Instead, this is a case of the Swedish government responding to the needs and pressures of the working mothers, who after childbirth want to return to work as soon as possible. Books and articles maintaining that freedom for women includes freedom from having to raise one's own children are very popular in Sweden.

How do the patterns that have been discussed fit together to produce the Swedish suicide rate?

The child's early separation from the mother stimulates anger and at the same time deflates self-esteem. The control over anger and other strong affects requires that anger be handled with a great deal of detachment. Few combinations provide such fertile soil for suicide as affective deadening combined with, and based on, the need to control aggression. In the male, competitive performance is an acceptable salve for his self-esteem and may serve as an outlet for his aggression if he can so channel it. Because of rigid expectations for his own performance, however, the man becomes vulnerable to self-hatred and suicide if he fails in this area.

In the female, greater affectivity serves as a protective device. Although likewise damaged by early separation from the mother, her self-esteem can be restored by a stable relationship with a man if properly handled. However, her low self-esteem is not particularly helpful in arousing and sustaining the man's interest in her. Male attitudes toward women tend to aggravate the situation still further. Similar difficulties in dealing with aggression may be the woman's undoing if her relationship with the man develops poorly.

In both male and female cases, whenever the injury from the maternal relationship is more severe or the reaction to it more profound, an active paranoid attachment to the mother may become more important than any tie to work or to the opposite sex. In such circumstances suicide often represents a destructive act aimed at both the patient and his mother.

While the Norwegian mother-child relationship has some similarities to the Danish, there are important differences. An independent, self-sufficient child is highly valued in Norway (as he is in Sweden) and the child's personal freedom is not likely to be restricted. The focusing of the mother's emotional life on the child is to some extent counterbalanced by this desire for an independent child. Conversely, the child's self-sufficiency does not indicate a real lack of emotional involvement on the part of the mother as it often does in Sweden. In Norwegian patients who were suicidal, this counterbalancing may have failed in either direction. However, Norwegians are unlikely in adulthood to be as dependent in their adaptation as are the Danes and, what is more, they are not as vulnerable to a loss of dependency gratification.

Norwegian women are inclined to inject their own dependency longings into the relationship with their children. Significantly, therefore, younger women who attempt to commit suicide are especially those whose own dependency frustrations have reached a point where they did not want to care for their children altogether.

As to the frequency of reunion-after-death fantasies and a rather lenient attitude toward suicide (considered as an act that would be forgiven and not prevent one's happy afterlife), the Norwegian patients (excepting the pietistic group) were found to resemble the Danish patients. In Norway, however, one does not see those extremely rapid funerals with a brief period of mourning and a general "get it over quickly" attitude toward death, which are common in Denmark and apparently reflect the widespread separation anxieties of the Danes.

Furthermore, arousing the child's guilt is not the major method of discipline in Norway that it is in Denmark. Neither Norwegian men nor women tend to arouse guilt or sympathy as the best means of gaining attention or forcing affection, and the use of suicide as a form of emotional blackmail is much rarer in Norway than in Denmark.

Also, Norwegian women are not as insecure and preoccupied with the necessity of holding their men as Swedish women are, nor are they as vulnerable to the loss of a man as are women in Sweden or Denmark. If an older Norwegian woman is suicidal, she is more likely to be vulnerable to the loss of, or the permanent separation from, her adult children. However, there are relatively few women who carry a close relationship with their children to such an extreme.

Norwegian children as well as adults have their characteristic ways of handling anger and being *forurettet.* There is a tendency to paranoid pathology, and the failure of paranoid defenses can lead to depression and suicide; here suicide as an internalized murder may be seen. For Norwegian women with suicidal tendencies, repressed anger directed toward their children is more difficult to handle than that directed toward their men. Every woman is expected to be desirous of caring for her child, and the guilt feelings of those who are unable to do so are correspondingly pronounced. However, regardless of the kind or intensity of anger developed by a Norwegian child or adult, there is far less need here for the repression of anger than is seen in Denmark or in the characteristically detached Swedes. The ability of Norwegians to feel justifiably angry and to express their anger freely precludes the usual retroflexion of anger that was so characteristic of both Danish and Swedish patients and was such an important factor in the suicide problem of those two countries.

Since Norwegian children are not expected to practice that early suppression of emotional expression that is required of the young Swedish child, they are emotionally freer as adults. In escaping the Swedish affectivity problems and related feelings of deadness, the Norwegians avoid that proneness to suicide associated with such feelings.

The pietistic group believes that suicide is sinful and a deserved self-punishment that will continue after death. However, the Norwegian demands for success and achievement are far less rigid than those of Swedish patients. Being first is not required of them by their parents when they are young, nor do they require it of themselves as adults. They may wish to be better, but generally do not have to be best and do not make the strenuous efforts of the Swedish patients to achieve their goals. Lack of achievement does not result in the enormous self-hatred or the great need for self-punishment seen in Swedish patients. The death-as-self-punishment-for-failure fantasies of the Swedes were conspicuous in Norway by their absence. Emphasis was placed on the reasons for the low suicide rate in Norway in comparison with the high rates in Sweden and Denmark. Of equal significance in this study has been the finding that the suicide rates in Sweden and Denmark are high for reasons that are quite different. This observation has important implications for the exploration of suicide and of other clinical problems as well, particularly in the context of cross-cultural comparisons.

What is seen in Sweden may be called a "performance" type of suicide. Based on rigid performance expectations with strong self-hatred for failure and set in the matrix of a particular Swedish affectivity problem, such performance suicide is also traceable to an early mother-child separation. Suicides of the performance variety are probably common among the Germans and Swiss and, with important modifications, the Japanese. However, in each of these countries suicide is likely to have its own specific features which are revealing about the culture as a whole and which would make the cross-cultural study of suicide in these countries worthwhile.

In Denmark one encountered primarily a "dependency loss" type of suicide. Specific Danish features are a tendency toward passivity, oversensitivity to abandonment, and an effective use of the technique of arousing guilt in others; once again, these features have their basis in Danish family patterns. The "dependency loss" or "love" type of suicide committed by Danish men and, to a lesser degree, by Norwegian men seems almost a romantic anachronism, since performance suicides are apparently becoming more and more the rule in our modern world.

Norway also served as an experimental laboratory for another type of suicide which is best described as a "moral" form of suicide. It stems from aggressive antisocial behavior and strong guilt feelings aroused by such behavior, with the entire constellation cast in a puritanical setting.

Since the United States is a nation of various subcultures, it is not surprising that elements of all three suicidal patterns are also encountered here. However, because of the multiplicity and innumerable mixtures of patterns in this country, the task of identifying the various psychodynamic patterns of suicide here is an extremely difficult one. Hence the opportunity of observing these patterns in a "purer" form and under their original formative conditions is comparable to having a vast clinical laboratory in which thorough studies of the psychodynamics of suicide can be conducted.

After a study of suicide in Scandinavia, the "dependency loss," "performance," and "moral" types of suicide, as we see them in the United States, could not only be more clearly defined, but critial factors distinguishing the psychodynamics of each type, such as differing attitudes toward death and various fantasies about an afterlife, could be identified and made meaningful. By limiting the variables one must deal with, the study of suicide in the more homogeneous Scandinavian cultures simplifies the separation of the psychodynamic factors that are essential from those that are superfluous.

In fact, such a "cross-cultural laboratory" would probably prove equally productive in the study of other clinical entities. After all, the number of ways in which individual and social maladjustment may be expressed is clearly limited: suicide, neurosis, crime, alcoholism, and a few other conditions. It is reasonable to assume that these entities vary qualitatively, i.e., in meaning and significance, as well as quantitatively from country to country.

16

SUICIDES IN LOS ANGELES AND VIENNA[1]

NORMAN L. FARBEROW, Ph.D.
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> *Another example of a cross-cultural study of suicide is an inter-cultural study comparing two cities with high suicide rates—Vienna, Austria and Los Angeles, California. It illustrates the necessity for looking at behavioral phenomena in the perspective of another culture in order to better understand its occurrence in our own culture.*

This study compares data gathered by identical methods on suicides in two different national settings. The subjects of the study were from Vienna, Austria, and Los Angeles, Calif. Suicide rates in the two cities are roughly comparable, namely 17 per 100,000 population in Vienna (1966 police records) and 18 in Los Angeles (1967 coroner's statistics). There is no need to dwell in this report on the flaws in suicide statistics; however, both localities undoubtedly have high suicide rates and have had them for many decades.

The data from both localities were obtained by the "psychological autopsy" method, a technique first employed by Farberow and Shneidman (Farberow and Shneidman 1961). An "autopsy" goes beyond the usual data supplied by police records and coroner's reports; intensive interviews are conducted with family, relatives, and significant friends of the deceased to uncover as much as possible about the dynamics that led to the final lethal step.

Each national group in this study consisted of all the suicides that became known through public records in either city over periods of time. The period in Vienna was October 1, 1965 to April 29, 1966, and in Los Angeles from January 1 to May 16,

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[1] Condensed from Farberow, Norman L., and Simon, Maria D. Suicides in Los Angeles and Vienna. *Public Health Reports,* 84(5):389-403, 1969.

1967. The Vienna cases were gathered consecutively, while the Los Angeles cases were collected in two periods, approximately half in January and half in May. (Case collection was interrupted when the time interval between the death and interview began to exceed 1 month). The Los Angeles case data were gathered within a shorter timespan than the Vienna data because Los Angeles County is a "catchment area" of approximately 7 million people (about 1,100 suicides occur there each year).

For each suicide, a member of the investigating team contacted a survivor and enlisted his cooperation for an interview that lasted an average of 2 hours. If the contact refused to be interviewed or if no contact could be found, the case was recorded as an "incomplete data case." In Vienna, attempts to investigate 149 cases were necessary in order to accumulate the desired 50 "complete data cases." In Los Angeles, attempts to investigate 94 cases were necessary before reaching the goal of 50 complete data cases.

The reasons why complete interviews could not be obtained in this study were noted. The number of refusals was about the same in both localities (24 Viennese, 20 Los Angelinos), but in Vienna many fewer contacts with close knowledge of the deceased could be found. No contact was located in 21 suicides in Vienna and in 15 in Los Angeles. Cooperative but uninformed contacts were found in 41 cases in Vienna and in three Los Angeles cases.

The interview was semi-structured; that is, questions concerned each of the following topics, but the interviewer was not limited in order and format in conducting the interview.

Identifying information about the deceased
Details of suicide act
Communication about suicidal intent
Reactions to presuicide communication
Previous suicide attempts and motivation
Syndromes
Lethal intent
Personal and background information (medical, psychiatric, marital, social, occupational and financial, residential, and developmental)

The first seven categories relate, in the main, to the act itself and the situation immediately leading up to it; the personal and background information refers to the deceased's personality, interpersonal situation, and history. The same amount of information could not always be obtained for all subjects. However, apart from the individual differences, some noticeable national characteristics in type and amount of information obtained for different items emerged.

Information from the protocols was coded and tabulated according to a special coding procedure, designed with the assistance of the Western Research Support Center, Veterans Administration Hospital, Sepulveda, Calif.

The coding procedure allowed the more than 500 variables to be analyzed by computer. Approximately 75 percent of the variables were factual (age, sex, number of previous attempts, and so forth), but for the remaining 25 percent, the coder was required to make a judgment about the respondents' statements. Reliability of coding was tested by selecting five cases at random from the 50 complete data cases and having another interviewer code them. Agreement on factual items ranged from 91 to 94 percent; on the judgmental items, from 82 to 92 percent.

Results

Unless specifically noted, results are based on the complete data records for 50 cases from each city. Some information is missing for some subjects, and consequently the findings related to the smaller numbers are indicated on the pertinent tables. Unless otherwise noted, all statistical comparisons in the "Results" section were computed by the chi-square test.

In both total samples, slightly more men than women killed themselves. In Vienna 55 percent of the decedents were men, and in Los Angeles, 53 percent. The differences by sex were not significant. A significant difference in sex composition did emerge when complete and incomplete cases were considered separately.

In Vienna there were four complete records for men for each complete record for a woman; whereas the 57 women outnumbered the 42 men among the incomplete cases. In Los Angeles, by contrast, the proportion of men to women was about the same for both complete and incomplete cases—23 men, 21 women in the incomplete cases and 27 men, 23 women in the complete cases. Possible reasons for these findings are considered in the discussion.

The mean age for the total sample of those committing suicide in Vienna was 53 years and for Los Angeles it was 48 years. The difference was not significant. The mean age of men was 50 in Vienna and 45 in Los Angeles, and for the women, it was 56 in Vienna and 51 in Los Angeles. None of the differences between mean ages for sexes between or within cities was significant. Likewise, none of the differences between or within cities for mean age or age by sex comparisons for the incomplete data cases was significant.

When the mean ages of the complete data cases were compared, the Vienna group tended to be older than the Los Angeles group (52 and 46 years, $P < 0.05$) and for the men (52 and 42 years, $P < 0.05$). The differences between the women were not significant, either between or within cities.

The marital status for the complete cases does not differ significantly between Viennese and Los Angeles decedents. In Vienna, 56 percent were married, 14 percent were single, 18 percent separated or divorced, and 12 percent widowed. In Los Angeles, 46 percent were married, 12 percent single, 22 percent separated or divorced, and 20 percent widowed.

In the total sample no suicides occurred significantly more often on any one day in either city. Although it seems curious in this sample that most suicides in Vienna (37 percent) and fewest suicides in Los Angeles (21 percent) occurred on Friday and Saturday, the difference is still nonsignificant.

For both the total sample and complete data groups, there were two significant differences in the method of suicide. In Vienna, 38 percent of the total sample used domestic gas; none of the Los Angeles suicides died using gas, since the gas in that city is nonlethal ($P < 0.01$). Guns were used in 39 percent of all Los Angeles suicides, but in only 4 percent of those in Vienna ($P < 0.01$). The differences between the two cities in use of any of the other methods are insignificant. No Viennese killed himself using motor exhaust gas. In Los Angeles, a city infamous for its high ratio of cars per population, 6 percent of the total group used this method. No significant differences occurred between methods for the total sample and methods for the complete data groups.

Where did subject die? Was he likely to be seen at the place of suicide? Who found the body? Was there indication that the suicide was planned? These questions were posed to determine the chances of rescue. No significant differences were found between Vienna and Los Angeles in the answers to the first three questions for the complete data groups. However, 54 percent of respondents in Vienna denied the act was planned, while 93 percent of the Los Angeles contacts felt there had been some planning ($P < 0.05$).

Approximately the same number of subjects in both samples (41 percent in Vienna and 32 percent in Los Angeles) were reported to have been drinking at the time of the act.

As findings from systematic suicide research accumulate, it has become increasingly apparent that many, if not most, persons who become suicidal give ample warning of their intentions and, in a sense, plead to be rescued. To what extent have these forewarnings been apprehended, heeded, and responded to in our samples?

Did the subject leave a suicide note? Had he been writing regularly to anyone? Both these questions seek the extent of communication between the person and society preceding the act. Respondents' answers to both questions indicated that the Los Angeles subjects had significantly greater communication. Forty-six percent of them left suicide notes; only 18 percent of the Viennese did so ($P < 0.01$). Thirty percent of the Angelinos, compared with 9 percent of the Viennese, had been writing regularly to someone ($P < 0.05$).

To the straightforward question whether the subject had talked about killing himself on last contact, nearly all the respondents replied no or evaded the answer. Only four of 43 Viennese and two out of 48 Angelinos said yes. When the question was framed more subtly by asking whether the deceased had behaved in an unusual manner at the last contact, that is, did he communicate nonverbally, 32 percent of the Angelinos and 12 percent of the Viennese remembered he had ($P < 0.05$).

To whom had the subject talked about his intention to commit suicide? Answers to this question were categorized as "significant others," a heading that combined spouse, relatives, fiance(e), lover, and friends or as "to no one or don't know." Communication between subjects and significant others on the impending suicide was markedly higher in Los Angeles than in Vienna (72 percent compared with 27 percent, $P < 0.01$).

Did the subject act as if he would not be around any longer? Although the deceased didn't seem to talk about killing themselves, more Los Angelinos seemed to act as if they wouldn't be around long (by taking out insurance, writing a will, putting their affairs in order, giving away personal belongings). The percentages were 25 in Los Angeles, 2 in Vienna ($P < 0.01$).

The respondents were asked what problems the subject spoke about. Most often the problems were physical health (about 35 percent), feeling unwanted (about 32 percent), and interpersonal difficulties (about 17 percent). Differences were not significant between the samples.

How did significant others react? Communications were more often ignored in Vienna, 56 percent compared with 34 percent in Los Angeles ($P < 0.05$). Help seemed more frequently extended in Los Angeles (30 percent versus 10 percent, $P < 0.05$).

More previous attempts were reported for the Los Angeles group than the Viennese (50 percent versus 29 percent, $P < 0.05$). Three or more previous attempts were reported for six persons from Los Angeles and one person from Vienna. Either would-be suicides in Vienna succeed more often on their first attempt or prior attempts are more often denied.

Respondents' reasons for the deceased taking his life are likely to be surface ones, but are interesting as indications of "acceptability" within each culture. The Viennese ascribed the cause most often to physical illness (39 percent) while the Los Angelinos most often thought of interpersonal difficulties (36 percent, $P < 0.05$).

Many attempts are not meant to end in death. The act is a plea for help, a gesture, an effort to manipulate the environment, rather than an act to terminate life (Farberow and Shneidman 1961; Shneidman and Farberow 1957). How many subjects seemed to have a high degree of lethal intent in their actions? While generally difficult to evaluate from our respondents' information, one measure used was the response to the question posed directly to the informant. These responses showed that about two-thirds of the suicidal acts in both groups seemed intended to be lethal. There were no significant differences between the groups.

Discussion

This study, reporting on a few of the salient points investigated, reveals many similarities, as well as differences, in the suicides committed in the two cities. Some differences, it was felt, were due to cultural influences, local conditions, mores, values, and so forth. One caution must be borne in mind. The proportion of men to women in both total samples is about 55 to 45 percent, which approximates the sex ratios for those committing suicide previously reported for the two cities, 52 percent men to 48 percent women (1966 Vienna police records) and 61 percent men to 39 percent women (1965 Los Angeles coroner's office records). However, in our study, men who committed suicide were easier to investigate in Vienna than women because female informants were easier to contact. Eighty-two percent of the informants were female; 18 percent were male. Thus, there were 57 incomplete data cases for Viennese women and 42 for men, but the complete data cases contain many more men (40 versus 10). The information in depth for the Vienna cases is, therefore, more likely to be about men, and conclusions or inferences must be viewed with caution, especially if they refer to sex differences.

Some general comments can be made about suicide in the two cultures which seem appropriate to the significant differences. Perhaps one can usefully distinguish between avoidable and unavoidable misery. Some of the stresses leading to suicide seem to be more or less universal (for example, loss of loved one, serious illness, and physical and emotional exhaustion), and they are perhaps part and parcel of life in all places and at all times. There are, however, particular stresses that seem amenable to mitigation if members of a society are sufficiently aware of them and willing to look for remedies. In Vienna, the primary impression about those who commit suicide is that they are very alienated and isolated. This observation emerges from the apparently greater difficulties in communication and the prevalence of syndromes indicative of interpersonal detachment. For example, one of the syndromes found most often for Viennese women was "old and alone." About 21 percent of the men and 27 percent of the women now living in Vienna are over 60 years of age (1961 census). The women live for the most part on very small pensions, all alone in small, dreary, constricted apartments in large apartment blocks. There are few social clubs or similar facilities for oldsters, there is no visiting nurses' service for the ailing, and there is traditionally little social interaction between tenants in apartment buildings.

The generally lower level of social group cohesion and communication seemed to extend even into the family sphere. It was striking to note how little spouses knew about the thoughts, hopes, aspirations, and problems of their partners. Only 27 percent of the Viennese were reported to have voiced their depressive feelings and self-destructive intentions directly to significant others. This observation is consistent with the 32 percent reported by Ringel in 1961, and it contrasts with the Los Angeles cases, in which 72 percent of the deceased were reported to have indicated their intentions. The impression was that the Austrian informants were not so much unwilling to give such information but that they were often unable to comprehend questions that related to problems of interpersonal communication. The Viennese did not share activities or leisure time with their mates and, in addition, showed great reluctance to discuss any facet of their sex life. In Los Angeles communication seemed not only to occur more often, but also to be more verbal; more of this group were writing regularly or had left a note or had talked about suicide.

Related to the lower sensitivity concerning emotional states is the apparent tendency of Viennese informants to discount psychological causation. Thus, in Vienna the victim's ills were in many more instances attributed to poor and worsening health than to emotional or interpersonal causes than among the Los Angeles victims. Another finding was that the Viennese were in mental hospitals or used psychiatric help less often than the Angelinos. Paradoxically, the second most frequent cause of the act attributed by the Viennese respondents was mental illness. In predominantly Catholic Austria the identification of mental illness as the cause of suicide is more acceptable to survivors than other causes and helps them tolerate the event, as well as to facilitate burial arrangements. In Los Angeles, the syndrome of emotional instability was found more often than in Vienna, and interpersonal difficulties was identified as the primary cause of the suicide in at least one-third of the cases. The greater proportion of mental disorders found in the Los Angeles sample probably reflects both a greater awareness of and acceptance of mental health problems as factors in everyday living than in Vienna. Thus, for the Los Angeles cases, most suicides were attributed to an interpersonal crisis in the family sphere, with environmental factors playing a minor role. In fact, it is striking in how few Los Angeles cases the suicide was attributed to bad living conditions or financial troubles, and how much more often to breakdowns in interpersonal relations.

Differences between the two cities in the suicidal act itself are of interest. Although Vienna and Los Angeles have about the same overall rate of suicide, the preferred method was domestic gas in Vienna and guns in Los Angeles. Gas was lethal in Vienna until 1965 and not in Los Angeles; guns are readily accessible to Americans and not to Austrians. It is not clear how much accessibility of methods to kill oneself has to do with the overall rate of suicide in a given area. However, knowing that most people have second thoughts about dying if given half a chance, it is probable that readily available means increase suicide rates. It is also worth noting that all of the completed or attempted homicides in connection with suicide were perpetrated in Los Angeles, and all were committed with guns. The three methods which account for 87 percent of the suicides in Los Angeles were—shooting, 39 percent; barbiturates, 32 percent; and hanging, 16 percent. In Vienna, 84 percent were accounted for: by gas, 38 percent; hanging, 25 percent; and barbiturates, 21 percent. Barbiturates have been used increasingly more frequently in Los Angeles, accounting for 39 percent of the certified suicide deaths in 1962, compared with 26 percent in 1953 (Curphey et al. 1970). Ringel's study (Ringle 1961) indicates that in 20 percent of his 50 cases barbiturates were the cause of death.

As noted, the largest group with the syndrome "old and alone" was Viennese women. Do they contribute more than would be expected to the population of older persons who commit suicide in Vienna? How does this proportion compare with age-sex-specific rates in the two cities? A comparison was made between suicide and population statistics for elderly persons over 60 for the two cities. The suicides are those reported by the Vienna police for 1966 and the population totals are from the 1961 census. For

Los Angeles, the coroner's 1966 statistics and 1960 census totals were used.

For both Vienna and Los Angeles the number of women who killed themselves was still considerably lower than the number that could be expected from their representation in the general population ($P < 0.02$ for Vienna, $P < 0.001$ for Los Angeles). The discrepancy between suicides of men and women was larger in Los Angeles than in Vienna, which reflects the relatively higher suicide rates among the elderly men in Los Angeles, as shown by the age-sex-specific suicide rates for persons 60 years or older: Los Angeles—men 47.8, women 23.2; Vienna—men 37.1, women 23.8. Apparently, old men in both cultures continue to be the main source of disproportionate contributions to the suicide problem. However, the "old and alone" women in Vienna constitute a group of special high risk. An intensive study seems called for to explore conditions and contributing factors that might yield an effective preventive program.

Two points of similarity are of interest. With alcoholism noted as a prominent problem in the histories of one-third of those committing the suicides in both Vienna and Los Angeles, it is apparent preventive procedures could be profitably applied in another readily identified high-risk group. Trained personnel in alcoholism clinics as well as in outpatient mental hygiene clinics and mental hospitals could be alerted to look for suicidal tendencies. The supposition that alcoholism may actually provide a substitute outlet for anxieties and tensions for many people, thus obviating overt suicidal activities, apparently does not apply to all persons with the alcoholism syndrome.

An effort was made to determine the lethal intention of the deceased, a significant point in view of the established ambivalence in suicidal behavior. The question is not easy to assess, for information on the relevant factors is often difficult to obtain from survivor-informants close to the deceased and often reacting with their own dynamics of guilt, anxiety, shame, and denial. Nevertheless, the rough estimate was that about 70 percent of the two groups had been serious in their intention to die. Even if one makes the most extreme assumption—that none was preventable—presumably interventive activity would have been both feasible and effective for the other 30 percent. A 30 percent reduction in the number of suicides would make a considerable dent in the suicide rates.

In general, the Viennese seemed socially alienated and isolated and in poor communication with spouses, relatives, and close friends. Those committing suicide in Los Angeles were more often in strained or broken interpersonal relationships and under great social and occupational pressures. Communication of feelings seemed to occur more often among the Los Angeles cases than the Viennese cases. The results showed no significant differences in age, sex, and marital status for the two groups.

The Viennese used domestic gas primarily to kill himself while the Los Angelino most often used a gun. For the Viennese, the cause of the suicide was more often attributed to physical illness; for the Los Angelinos, most often to interpersonal difficulties. About two-thirds of the suicidal acts in both groups seemed intended to be lethal.

More Viennese men showed reactive depressions, more Viennese women were old and alone, and more Los Angeles men and women showed emotional instability. Alcohol was a serious problem for at least a third of the decedents in both groups. Those in Los Angeles were occupationally and residentially more mobile than the Viennese.

Ways of decreasing the suicide rate in both cities are discussed, including legal, social, and professional action. At present, increased direct intervention capabilities through more suicide prevention centers are needed. For the future, primary prevention programs to improve early identification of the suicide-prone and also to provide public education that dispels taboos hold most promise.

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17

RESEARCH ON SUPER-SENSITIVE LABORATORY METHODS IN SWEDEN

EARL USDIN, Ph.D.

> *Utilizing unique international resources for mental health research may involve support for outstanding researchers who have developed techniques not available elsewhere in the world. Such is the case in the following account of a method for detecting very small amounts of drugs or other chemicals in the body.*

Although most of the financial support for Dr. Bo Holmstedt's laboratory at the Karolinska Institute in Stockholm is supplied by Swedish sources, the National Institute of Mental Health has awarded some support to this laboratory for several years. This American support has been used to enable Dr. Holmstedt to employ both postdoctoral fellows and technicians to work on problems of strong interest to American (as well as other) psychopharmacologists and to purchase equipment and supplies needed for this collaborative research.

The major emphasis in this research has been the development of novel methodology to enable assay of psychotropic compounds at the extremely low levels found in body tissues or to identify unknown drugs or unknown metabolites of drugs. The methodologies developed in the Stockholm laboratories have been published in appropriate journals and have then been used with great success in American psychopharmacological research laboratories. Dr. Holmstedt has also been kind enough to train visiting American scientists in the principles of his techniques and he has always been willing to work on urgent problems referred to him by his NIMH project officers.

A recently announced result of this laboratory is a method for measuring tetrahydrocannabinal (THC) levels in blood after the smoking of even one marijuana cigarette. The key to this sensitive assay is mass fragmentography--a method developed in Dr. Holmstedt's laboratory which has been successfully applied by both the

Swedish researchers and others to the assay of many tranquilizers, antidepressants, and other psychotic drugs.

Mass fragmentography is "essentially a technique in which the mass spectrometer is used as a chromatographic detector and advantage is taken of the physicochemical characteristics of the compounds in order to achieve separation, specificity, and sensitivity" (Hammar et al. 1969). Not only has the general technique of mass fragmentography been developed by Dr. Holmstedt's laboratory but many improvements and innovations have also been introduced. These include new detectors, new methods for programming data, new internal standards, etc. Sensitivity of 10^{-12} gram (1 picogram) and better has been demonstrated.

The NIMH-supported work in Dr. Holmstedt's laboratory may be divided into three categories: (1) the development of new super-sensitive analytical methodologies, (2) the application of such methodologies to the analysis of natural products, and (3) the application of such methodologies to metabolic studies. Prior to the development of mass fragmentography, the Stockholm laboratory had introduced the use of the combination of gas chromatography with mass spectrometry for the identification of drugs and alkaloids. Another innovation which was proposed by this group was that of the use of stable isotopes for the ion-specific detection of internal standards. Two interesting quantitative techniques pioneered in this laboratory were (a) elemental analysis in the effluent from a gas chromatograph by means of a combined multiple ion detector-peak matcher device and (b) the use of mass fragmentography for the quantitative determination of various drugs, metabolites, etc.

Among the natural products analyzed was a 1600-year-old botanical sample (various alkaloids were successfully identified). Other exotic studies included studies of the alkaloids of such plants as *Latua pubiflora, Banisteriopsis spp.*, and *Ilex quayua*; the complete analysis of *Virola* species (used for hallucinogenic purposes), and the first complete analysis of "auahuasca" (South American hallucinogenic drink). Among the discoveries of Dr. Holmstedt under the aegis of NIMH support were the presence of the compound 6-methoxytryptamine in *Banisteropsis caapi* and two β-carbolines in South American plant material. This research has also identified 4-dimethylallyltryptophan, an efficient precursor of both clavine type and lysergic acid type ergot alkaloids. The Swedish methodology has also been used to determine the structure of various hallucinogens found in plant materials as well as to detect the compound *trans*-3-methyl-2-hexanoic acid in the sweat of schizophrenic patients.

Among the interesting metabolic studies of the Karolinska researchers, there have been several on therapeutic drugs (chlorpromazine, nortriptyline) as well as several on cannabis constituents. These studies have been both qualitative (i.e., identification of metabolic products) as well as quantitative. Some of the more recent studies have used cerebral spinal fluid as the source tissue since it may be more representative of the brain status than other available fluids.

Mass fragmentography has been used for the detection of biochemical intermediates particularly with regard to cholinergic mechanisms in the central nervous system including studies of the synthesis of oxotremorine and acetylcholine. Recently, the Swedes have published studies on the analysis of amines and their metabolites in the cerebrospinal fluid with emphasis on assay of the two compounds 5-hydroxyindole-3-acetic acid and indoleacetic acid.

Space limitations permit discussion of only a few of these accomplishments. As indicated above, Dr. Holmstedt's group has done pioneering work on the metabolism of nortriptyline, one of the tricyclic antidepressants. Urine from patients treated with this drug was shown by mass fragmentography to contain a substance with properties similar to those of the 10-hydroxy derivative of nortriptyline. A mass spectrum of the trifluoroacetate (TFA)-derivative of this compound showed a molecular ion at m/e = 343, which is 14 atomic mass units less than that of the TFA-derivative of 10-hydroxy-nortriptyline, indicating a loss of a methylene ($-CH_2-$) group. As the fragmentation patterns of the two compounds are so similar, it would be very unlikely if these compounds did not have similar structure. Thus, Dr. Holmstedt concluded that the metabolite might be the 10-hydroxy-derivative of desmethylnortriptyline. The TFA-derivative of this compound was prepared and was shown to be identical with the TFA-derivative of the unknown metabolite.

The Swedish methodology has also been used to identify an unknown hallucinogenic drug, identified by the street name "Hog." A total sample of only 20 mg was sent to Dr. Holmstedt's laboratory; this material had to be purified before further work on identification could proceed. After extraction and gas chromatography, a single compound was obtained with a molecular weight of approximately 243. From mass spectral tables, the conclusion was reached that only the empirical formulas of $C_{14}H_{27}O_3$ or $C_{17}H_{25}N$ were possible; the former could be eliminated since it is impossible to construct a molecule with this formula. Scanning of the mass spectra showed a fragment with m/e = 84, which may be characteristic of a piperidine moiety; another fragment with m/e = 158, indicative of a phenylcyclohexyl moiety; and a third fragment with m/e = 166, probably a cyclohexylpiperidine moiety. At this point, the Swedish workers consulted an NIMH publication (*Psychotropic Drugs and Related Compounds*, E. Usdin and D. H. Efron, PHS Publ. No. 1589, 1967) and found that there was a compound listed therein which did have the requisite three ring systems: phencyclidine. Furthermore, this compound has the appropriate molecular weight (243). Comparison of authentic phencyclidine and the material purified from "Hog" proved the two were identical.

An interesting negative result has been obtained with the Swedish methodology. There has been much controversy in recent years over the identification of the so-called "pink spot" obtained from the urines of schizophrenics. Since the quantities of pink spot material excreted were extremely small, the gas chromatographic-mass spectrum (GC-MS) method appeared very suitable. An English researcher (Dr. Pauline Ridges) spent some time in Stockholm mastering the technique. She was then able to show that the pink spot was not the compound which it had previously been thought to be (3,4-dimethoxyphenethylamine = DMPE). The spectra of the pink spot material did not correspond to DMPE, although DMPE added to normal urine was readily identified by the GC-MS techniques. Furthermore, the mass spectra of pink spot did not correspond to those of any drugs (or their metabolites) used in the treatment of schizophrenia. It will be interesting to get the results from Dr. Holmstedt's laboratory on the identification of pink spot.

One example of the use of the Swedish techniques for quantitative analysis is that of assaying for levels of heptobarbital. Heptobarbital was extracted from biological material and methylated. Cyclobarbital was chosen as an internal standard. By addition of defined quantities of heptobarbital and a constant amount of the internal standard, cyclobarbital, to heparinized human plasma, a concentration series that covered the whole planned analytical range was prepared. The barbiturates were methylated with diazomethane. Because of the need to cover a broad analytical range, two recording channels were used for m/e = 249 with gains set far apart; it was possible to determine heptobarbital in an analytical range of 0.02 to 10 μg/ml. The calibration curve for the determination of heptobarbital is given by the sum of the peak areas of the two dimethyl-derivatives of heptobarbital divided by the sum of the peak areas of the two dimethyl-derivatives of cyclobarbital. This calibration curve was linear within a wide range within the exception of the very lowest part. The total analysis time for a plasma sample was less than 6 minutes, permitting at least 50 samples to be run in one day.

One good indication of the value of NIMH support to Dr. Holmstedt's laboratory for American and other psychopharmacologists is the publication list of this laboratory; for the period 1965-1971, it includes over 80 publications.

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CROSS-CULTURAL STUDIES OF CHILD-REARING IN AMERICA AND JAPAN

MIEKO IMAGI CAUDILL, B.A.

Dr. William Caudill was a research anthropologist at NIMH for 12 years until his death in 1972. With his wife he did cross-cultural anthropological studies on the effects of child-rearing in different cultures. His work illustrates the important effects of early childhood learning and the fact that such learning continues to influence the behavior of individuals all their lives.

My late husband, William A. Caudill, believed as he wrote in "The Study of Japanese Personality and Behavior" that "some aspects of human personality are at least a million years old and in many ways everybody is more alike than different. People are also obviously influenced by the cultures to which they are exposed and therefore differ in personality from one society to another" (Caudill 1970). If we are going to learn to live together in this world, then, we have to learn about each other and learn to appreciate each other without insisting that we are all alike or that we should become alike. That is a part of the cultural anthropologist's job: to help learn about the people's ways of life, with *respect* for every human being's way of life, no matter how different it may seem from his own.

The people who live in one country share, in addition to a common language, an apparent similarity in values, customs, and beliefs that give to an outsider the impression that they share a national character. My husband as an American was better able than I to observe the national character of the Japanese; and I, being Japanese was better able to observe that of the Americans. We each had the opportunity to spend considerable time in each other's country and we had concluded that in comparison to each other, the Japanese generally appeared passive and the Americans appeared aggressive.

This difference in the national character is reflected also in a patient's response to mental illness, and two incidents stand out in my memory so clearly that I can still recall them in my mind's eye. Accompanied by a doctor in charge, we went into a locked ward at the Tokyo Metropolitan Matsuzàwa Hospital which would be equivalent to a public city hospital such as St. Elizabeths Hospital in Washington, D.C. Most of the patients in a huge bare-looking room, paid immediate attention to our entry and stood up from their original positions of lying down, bending down, and sitting down—many of them naked. They bowed to us and some of them came to look at my husband with curiosity. Being Japanese, this was a very ordinary event for me since it is socially demanded for Japanese to be polite to anyone having higher status, whether or not one was ill; but this impressed my husband deeply. He remarked, with a strong sense of discovery, that this must be a learned behavior. On the other occasion when we came out of Seiwa Hospital, a private hospital, my husband was again impressed by the interaction between the doctor and a patient during examination. The patient said "Watashi o omakase shimasu" meaning "I am completely in your hands." It seemed to my husband that the doctor was expecting these words from the patient before they could begin to relate to each other with ease. Again, my reaction to my husband's comment was the same as previously: had I been in the patient's position and being Japanese, I would probably have said the same thing to the doctor.

Americans are not the only ones who are struck by cultural shock. An example of another side of this coin is given by Professor Takeo Doi (1972) of Tokyo University, in his recent book *Amae no Kozo* (The Structure of Amae). During his psychiatric training in the United States in early 1950, Doi encountered daily events which were extraordinary to him, but were very ordinary to any American. He was invited to dinner by his American colleague for the first time. He was asked what kind of drink he preferred—hard liquor, beer, or soft drink. Next he was asked to decide whether he wanted scotch, bourbon, or gin, and was again asked to say in what way he preferred it—with water, on the rocks, or what-not. The dinner was no problem; after dinner he felt that he was again forced to decide between coffee and tea with sugar or cream, and how much sugar or cream. In Japan, on the other hand, when one invites a guest, the host serves foods or drinks without asking the guest to indicate his preference. At the same time, the host ritualistically says, "This may not fit your taste, but please accept my serving this."

My husband devoted his professional life to making a bridge between psychiatry and anthropology. He became convinced while we were working on psychiatric hospitals and illnesses that the infant-rearing practices would make significant differences in childhood personality development and this in turn would lead to differences in adult behavior. Thus, in 1955 during our first field work in Japan, he decided to go into cross-cultural studies of child-rearing research in America and Japan.

Let me first summarize the method we used for our longitudinal study of cross-cultural child-rearing and then, let me briefly describe the findings in our 10 years of work. My husband's sudden death came while he was in the midst of analyzing the data of the children at the age of 2½ years, and before reaching the data of the children at the age of 6. Therefore, the findings presented here at 2½ years of age are preliminary. As my husband's colleague Dr. Melvin Kohn commented, "It is a sad truth, however, that much of what he intended cannot be carried through by anyone else; it required his first-hand knowledge of the data and his unique combination of statistical and clinical skills" (Kohn 1972). The method and result are described more fully in the earlier paper written by my husband and Weinstein, "Maternal Care and Infant Behavior in Japan and America," (Caudill and Weinstein 1969) and his last paper, "Psychiatry and Anthropology: The Individual and His Nexus" (Caudill, in press).

At the beginning of our study in 1961, we chose 30 first-born infants, equally divided by sex, and living in intact, urban, middleclass families in Japan, and carried out observations in the homes on the daily lives of these infants at 3 to 4 months of age, and conducted intensive interviews with the mothers. We then carefully matched the families of these infants with the families of 30 white American infants, and carried out parallel observations and interviews. As the first 20 of the children in each country reached the age of 2½ years, we again made observations in the homes and conducted interviews with the mothers; we repeated this process for a third time at age 6.

At infancy, we made our naturalistic observations on the morning of one day and the afternoon of the next day in the homes of the 30 Japanese and 30 American families. Data on the ordinary daily life of the infant were obtained by time-sampling, one observation being made every 15th second over a 10-minute period in terms of a predetermined set of categories concerning the behavior of the mother (or other caretaker) and the behavior of the infant, resulting in a sheet containing 40 equally-spaced observations. There was a 5-minute break between observation periods, and 10 observation sheets were completed on each of the 2 days, giving a total of 800 observations for each case. The term "mother" and "caretaker" are used interchangeably here as the mother was overwhelmingly the main caretaker in both cultures.

At 2½ years of age and also at 6 years, the method of data collection was somewhat different from that used at infancy. At infancy, the number of different activities that are possible is quite limited; the ratings are inherently more reliable since there are such a limited number of activities. Because of the greater variability of behavior and because of the difference in lifestyle, we made continuous observations over a total period of approximately 8 hours—4 hours on one afternoon, and an additional 4 hours on the subsequent evening, staying until the child went to sleep.

During infancy, the data showed a basic similarity in the biologically-rooted behavior of the infants in the two countries. For both infant groups, the total time spent in the intake of food—sucking on breast or bottle and eating semisolid food—were about the same. Similarly, both Japanese and American babies slept about the same amount of time. The mothers in the two countries spent about the same amount of time in feeding, diapering, and dressing of infants. Beyond these similarities, we have found so far that American mothers talk more to their babies and the babies, therefore, talk back more to their mothers. Also, American mothers encourage their babies to be active—to try to turn over, to reach up and play with toys, fingers, etc., more than Japanese mothers. And having been encouraged, American babies do this, and they become more active than Japanese babies. So the American mothers "expect" their babies to be happy—by which they mean "vocally responding a lot" and being "lively"—and to try to "do for themselves": one mother had her baby of 4 months eating by himself with a spoon—and he was doing so. On the other hand, the Japanese mothers expect their babies to be "happy" also, but they think the babies are happy when they are quiet and not active. So they carry the babies around, rock them, and soothe them a lot, and they do things for the babies instead of getting the babies "to try to do for themselves." Therefore, the Japanese babies, by 3 months of age, have *learned* to be quiet, and not to be so active, and to expect that their mothers will come and do things for them. The Japanese mothers sleep with their babies. This means that they usually lie on the bed with the babies until the babies are asleep. In addition, Japanese mothers bathe with their children. The Japanese mothers, in general, tend to continue this sleeping and bathing with the children until they are about 10 to 12 years old. Thus, both American and Japanese babies, by 3 to 4 months of age, have already begun to learn their culture—that is, how they are "expected" to behave in American life and Japanese life. American culture rewards people who are (a) good at talking, and (b) who are active and get started on their own doing things, etc. Japanese culture rewards people who do not talk all the time, who cooperate with others, and who take others' advice rather than just doing it themselves.

At 2½ years of age, the data analysis was concentrated on the variables of the child's verbalization and physical activity and the mother's verbalization to the child, as these were the main differentiating variables at infancy. In addition to this, my husband made reference to several other variables: the emotionality of the child and caretaker, and the total time the caretaker is actively doing something with the child. He stated: "As predicted, both the American caretakers and children are more totally verbal and more physically active than are their Japanese counterparts. Somewhat surprisingly for me, there are no differences between the cultures in the total emotionality shown by caretakers or children. The kind of emotion expressed, however, does reveal differences. Both the American caretakers and their children are higher on the expression of anger or aggression. The Japanese children, on the other hand, show more unhappy emotion, and this is in line with the greater amount of unhappy vocalization among the Japanese babies at infancy. Finally, as was true at infancy, the total amount of time spent at age 2½ by the caretakers in interaction with children does not show a difference between the cultures. At 3 to 4 months of age, the mothers in both cultures were in interaction with their infants about 40 percent of the time, and at age 2½, this percentage rises to about two-thirds of the time for the mothers in each culture" (Caudill, in press).

At this point, it is important to view the differences in the two cultures in the mother's perception of her infant and her relation to the infant. While the American mothers view their babies as potentially separate and autonomous beings who should learn to do and think for themselves, the Japanese mothers view their babies much more as an extension of themselves. American mothers use their vocal communication to let the babies learn to express their needs and desires while deemphasizing such physical contacts as carrying and rocking the infants. At the same time, American mothers place their value in relationships with their husbands and their own privacy. There is a saying in Japan for a pregnant woman, "mi hitotsu," meaning "one body"—that the mother and the unborn baby are not separate beings. This concept is carried on after the baby is born and psychological boundaries between the mother and the baby are blurred. The emphasis is placed on physical contact rather than vocal communication in

Japan and the mothers tend to do everything they feel that their babies need and wish. In Japanese culture, Japanese mothers, following the above-mentioned cultural pattern, devote themselves to the children without any great concern for time to be alone with their husbands.

One could argue that the differences observed between Japanese and American children are constitutionally determined rather than culturally. A crucial methodological step to sort out these two factors—cultural versus constitutional—would be to examine what happens to the development of Japanese-American infants raised in the United States. My husband and his colleague, Lois Frost, used the same observation method to study 21 Japanese-American infants—all from the third generation born in the United States. Although these infants were genetically Japanese, they found that Japanese-American and white American infants are similar, and that together they are significantly different from Japanese infants in Japan. My husband and Frost stated in their paper that "if group genetic factors are influencing the kinds of differences we find at infancy, then the Japanese-American infants should be more like the Japanese than the American infants. If, on the other hand, learned differences are predominant, then the Japanese-American infants should be more like the American infants (Caudill and Frost, in press). The Japanese-American infants have higher levels of happy vocalization and physical activity in response to the greater verbal stimulation provided by the mothers. Thus, it is suggested that the Japanese-American infants have learned to be more like American infants.

I would like to conclude this short paper with the statement that my husband made in his last paper in which he emphasized the importance of cross-cultural research: "I also hope that this paper indicates the crucial need for cross-cultural and cross-national studies. We simply cannot find within our country situations in which the dominant social structure and culture leads to patterns of behavior and feeling that are clearly different from our own. At the same time, we must learn more about the pluralistic aspects of our own society—including the nature of white middleclass life. Variations in this country from a white middleclass standard are too often seen as 'pathology' or as 'deprivation.' It is quite likely that black people, Indians, Mexican Americans, and other so-called minority groups may wish to keep important parts of their lifestyles even after they come to have access to a reasonable level of income, education, and job opportunity. We may even find that the very process of doing such work will also bring about change in the dominant sectors of our society" (Caudill, in press).

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19

PERSPECTIVES ON THINKING FROM MICRONESIA[1]

THOMAS GLADWIN, Ph.D.

The author, while an employee of NIMH, undertook field research on Puluwat, a small atoll in Micronesia. He studied the navigational skills and related thinking pattern of these people in an effort to learn about thinking patterns of people in our own country. The following is excerpted from his book summarizing his research, and illustrates psychological anthropology as a part of the behavioral sciences supported by Federal funds.

We have now before us a complex and organized body of knowledge, Puluwat navigation, and a somewhat less explicit and more intuitive theory of canoe design. We are ready at last to move into the psychological domain, treating navigation no longer as technology but rather as a sample of purposeful thinking in another culture. Before undertaking this, however, it will be well to restate the rationale for doing so, and particularly for making the comparisons promised earlier between the logic of Puluwat navigators and that of poor people in the United States.

Much more than just style of logic is associated with being poor, as there is more to be said about a navigator than to describe the way he thinks. The navigator is proud, assured, respected. A poor American is likely to be hungry, powerless, weak from poor health, his spirit crushed by hopelessness, in addition to whatever difficulties he may experience in solving the logical problems people ask him to solve (Gladwin 1967). Just being "intelligent" is far from enough to assure that a poor person can escape the suffocating constraints of poverty. Yet if the child of a poor family is seen as not "intelligent," which means particularly he is not able to do well on psychological tests and with the tasks presented to him in school, he is almost certainly doomed to the lifelong misery which is the lot of the poor.

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In the Western world, and throughout the world wherever change and modernization is valued, doing well in school is an almost inescapable requirement for moving upward into the ranks of privilege. Although persons who have not gone far or done well in school may regularly perform tasks which are objectively quite complex and difficult, the jobs they do are rarely accorded high prestige, and advancement is usually difficult or impossible. Furthermore, it is by now universally recognized that economically poor children generally make academically poor students. Thus any knowledge we can gain about why poor people do or do not perform well in school is relevant to the role of education as an avenue of escape from poverty.

Obviously, one important element in determining school performance is the way in which students use their minds, that is, the cognitive abilities and strategies they are able to bring to bear upon the problems presented to them in school. Many other factors are involved, especially for poor children, but there is general agreement that a child's way of going about solving intellectual problems has a major effect on his classroom achievement, and that poor children are generally less able to solve the problems presented both in class and on tests than are their more privileged fellows. Yet surprisingly little is reliably known about the nature of the logical processes which go on in the heads of children from underprivileged families, or in the minds of the undereducated and disadvantaged adults into which such children are too often transformed.

Part of the reason for this lack is doubtless that cognitive psychologists, like their colleagues in other areas of psychology, generally use as subjects for research and experimentation persons who are readily available and with whom they can communicate easily, which usually means college students or college graduates. Yet because those in our society who have been reared in poverty tend to do badly in school, they generally do not get into college. The consequence is that poor people and their style of thinking have not had a chance to play any significant role as subjects of basic research on cognition and the structure of human intellect.

This is not to ignore the large amount of research which has been done on learning deficits of poor people in the United States. The difficulty with this research, however, is that, instead of exploring the foundations of logical thinking as they are laid down in different environments, it has more commonly focused on how lower-class intellectual handicaps are manifested and distributed relative to income level, type of school, and so on. It is perhaps historically inevitable that research on cognition in poor people should emphasize contrasts with middle-class thinking. Not only did social class differences in cognitive style first become evident through recognition of consistently poor lower-class school performance, a quantitatively defined deficit which evaluative research now seeks to specify and delimit, but in addition the research tools available for this purpose are principally measurement techniques derived from concepts of intelligence developed within educational settings. Thus, rather than trying at the outset to discover qualities of thinking in underprivileged populations, researchers seek to *quantify* divergences from the psychological baselines used by educators, baselines rooted in middle-class intellectual culture. Emphasis is therefore on measurement, with the *qualities* to be measured accepted as givens. The possibility is thereby largely foreclosed of exploring other dimensions of thinking beyond those which are traditionally recognized within educational psychology. Stodolsky and Lesser (1967, p. 555) succinctly state the limiting effect this has on research in lower-class cognition: "The types of achievement and intelligence tests which are most often used can have only limited value in describing the cognitive functioning of children. In almost all instances, we are concerned with scratchings on an answer sheet, not with the ways in which a student arrived at a conclusion. No matter how much we may think we know by looking at scores on such psychometric procedures, unless tests are constructed deliberately to reveal reasoning processes, these processes will not be identified." Under these circumstances it is not surprising that despite a formidable amount of research, psychology has thus far failed to create any real strategic breakthroughs in educational technology for deprived populations. Research findings point either toward broadly maladaptive personality characteristics in poor children or to contrasts between the environments of home and school so wide that they are almost unbridgeable. Programs to prevent or remedy these conditions have been forced to adopt strategies equally broad and unfocused. Lasting successes have been correspondingly rare.

In reviewing this body of research one has the sense of many people groping about, trying out their familiar tools and strategies in infinitely varied ways in the hope of stumbling upon the effective cause of a deficit which all agree exists. Failing in the search, they are forced back upon old inadequate remedies and ever more precise but not very helpful tabulations of symptoms and cases. One is reminded of some of the dramatic searches for causes of deadly diseases which at intervals have illuminated the history of public health epidemiology. The successful quest for the cause of beriberi (Williams 1961), now known to result from vitamin deficiency, could provide a hopeful prototype for the present research. Beriberi was recognized as a distinct syndrome at a time when germ theory was revolutionizing the practice of medicine and of public health. Persistent efforts were made to isolate sources of beriberi "infection," especially on ships where mass outbreaks occurred, and to investigate the effect of the treatments then available for dealing with infections. No answer was found. Finally Western medicine turned to another area of the world, Asia. There, as we now know, eating polished versus unpolished rice can by itself make the difference between an adequate diet and thiamine deficiency, with resultant beriberi. In the Philippines a shrewd United States Army doctor, Edward B. Vedder, noting the striking differences in incidence of beriberi among troops on different diets, concluded that something left in unpolished grains of rice prevented the disease. From there to the isolation and synthesis of thiamine the road was long, but straight. Such can be the rewards of going to unfamiliar settings to seek the answer to overly familiar problems.

Thirty years ago a similar challenge confronted students of an area in psychology closely related to the focus of this book, that of personality research. Clinical studies of that time, especially in psychoanalysis, seemed to demonstrate that some aspects of personality characterized not only individuals but also subgroups in our society. Behaviors and emotions which appeared bizarre in some settings could be normal in others. The initial question raised by these seeming differences in group characteristics was whether they were real, and if so what their nature might be. Edward Sapir proposed that the first step should be to determine which aspects of personality are likely to be shaped by cultural forces and which are more idiosyncratic. To this end, he contended, one should begin with studies of people of markedly different cultures and then, enlightened by these dramatic perspectives, return to an examination of differences within one's own society. This insight inspired a research interest in culture and personality which continues to the present. Whatever their scientific merits, the resulting studies have helped clinicians discriminate between aspects of personality which are likely to be culturally determined and those which are individual or even accidental in origin. It is precisely this sort of clarification which is needed now with respect to styles of thinking and problem solving in different social groups.

There are already in existence numerous comparative studies of cognition in different cultures (Tyler 1969). However, with but a few rare exceptions these have been concerned with the frameworks within which information is organized for use, frameworks which have been variously called cognitive maps, semantic frames, or ethnoscience. Yet the differences in cognition between middle-class and poor people in the United States seem to lie more in the way information is processed and manipulated than in the way in which it is categorized and organized. If this is true, the critical differences should be sought in styles of thinking, problem-solving, and planning. For this reason an information-processing system such as navigation seemed more appropriate than one principally devoted to classifying hierarchies of information.

It scarcely need be added that a comparison of this sort, taken between two widely different cultures, can only lead to highly speculative conclusions. To the degree that constructs derived from one culture seem to fit plausibly phenomena found in another, the comparison has at least a measure of face validity. If the constructs in addition provoke further inquiry the effort can be judged worthwhile. It may in the end even lead to some change for the better in the human condition, in which event it must be viewed as very worthwhile. However, the goal of this chapter is far more modest. It is only to seek and suggest new avenues of investigation in a crucial field of research, a field which seems at times to be approaching stagnation.

When we relate Puluwat navigation as a way of thinking to our own culture it is not because we think we are looking at a similar pathology, like beriberi, in both settings. Rather it is because we can look at a comparable process, like personality development, which is common to both but probably different enough in each to provide illuminating contrasts. This process is the use of one's intelligence in the solving of important problems.

Puluwat navigation is unquestionably intelligent behavior, but Puluwatans do not necessarily think of it this way. It is an obvious feat of intellect to travel far across the ocean and arrive at a tiny island through the use of nothing but one's mind and senses. We in the Western world value intelligence highly. For this reason we respect the Puluwat navigator. Puluwatans also respect their navigators, but not primarily because they are intelligent. They respect them because they can navigate, because they can guide a canoe safely from one island to another. There is, it is true, a Puluwat word one can translate as "intelligent," and in these terms navigators are considered intelligent, but etymologically it refers only to having a good memory. There are furthermore many useful ways to use one's mind in addition to remembering technical information. A Puluwatan who is asked to identify people who think well or use their minds effectively is likely to select those whose decisions are wise, who are moderate and statesmanlike in discussion, not the technicians. This does not mean that the statesman is more important than the navigator. On Puluwat nothing is more important than navigation. It means that, whereas *we* can recognize and respect navigation as a pre-eminently intelligent activity, this is not its significant quality for the Puluwatan. Because navigation is in our terms intelligent, it can provide useful perspectives on intelligence in our own culture. In thinking of navigation in this way, however, we must not slip into the assumption that Puluwatans view their navigators as highly intelligent. They do not. They view them as navigators.

In the description of navigation two qualities emerged to characterize it logically, or cognitively, in addition to its technological dimensions. It is on the one hand comprised of systems of explicit theory, and on the other hand works with a limited array of predetermined alternatives of acceptable input and output. Examined more closely, from some of our traditional perspectives on intelligence, these qualities could be seen as contradictory. First, Puluwat navigation (and canoe design) can be said to be cast in theoretical terms because it is explicitly taught and conceptualized as a set of principles governing relationships between phenomena. The phenomena are sometimes directly observed but at other times are only inferred, as in the case of star-compass bearings when the course star is not in position to be directly observed. These relationships and these inferences are unquestionably abstractions. Some, for example *etak*, are abstractions of a rather high order. The concept in *etak* of a specified but invisible island moving under often invisible navigation stars is not only an abstraction. It is also a purposefully devised logical construct by the use of which data inputs (rate and time) can be processed to yield a useful output, proportion of the journey completed. Abstract thinking is therefore a pervasive characteristic of Puluwat navigation.

The second characteristic, that all inputs of information and outputs of decision are so to speak prepackaged or predetermined, means that within the navigation system there is little room or need for innovation. Navigation requires the solution of no unprecedented problems. The navigator must be judicious and perceptive, but he is never called upon to have new ideas, to relate things together in new ways.

The contradiction, if there is one, derives from our custom in psychology in the United States of relating both these qualities, abstract thinking and innovative problem-solving to a third, superior intelligence. More particularly all three of these qualities are often attributed to middle-class intelligence, and said to be lacking in the "concrete" style of thinking of poorly educated lower-class persons. True, statements of this order are usually descriptive rather than analytic and therefore do not, for example, stipulate a causal or inevitable relationship such that innovative thinking must always be abstract, or vice versa. An association between the three is, however, so consistently noted that one is inclined to think of them as regularly occurring together. Although Puluwat navigation can "prove" nothing about cognitive styles in the United States, we may at least say with respect to one of these associations that on Puluwat abstract thinking exists as a dominant mode in the absence of any requirement for solving new problems or solving old problems in new ways.

Although it may not be contradictory in a literal sense to say that Puluwat thinking as reflected in navigation is at once intelligent, abstract, and not innovative, this appears to contrast with the conventional wisdom regarding thinking styles as related to social class in the United States. We must therefore examine the relationships more closely. The associations here are: middle class: high I.Q., abstraction, innovation; lower class: low I.Q., concreteness, little innovation. Perhaps these associations are real. It is equally possible, however, that they result from a lack of precision in our definition of the terms used. It is the latter question to which this chapter is principally directed. What are the significant dimensions of intelligence, innovation, or abstraction to which we should be addressing ourselves when we make comparisons across cultural lines, whether these are between social classes or between the United States and Puluwat?

Let us look first at the abstract-concrete continuum. Abstract thinking as it is usually conceived by psychologists in the United States deals with properties of things which are not usually obvious. Often a quality must be inferred, or its significance sought through its being shared in other things which would not otherwise be seen as related. At one extreme abstractions may consist in simple qualities such as color or size which link objects together into classes. From there they range into far more complex logical constructs embracing phenomena of several diverse orders in complex relationships. Etak with its moving island is a good example from Puluwat. So is a canoe-builder who makes statements about the unobservable flow of water around the lower part of a hull. He is dealing with abstractions about forces and movements of water which he can only infer from surface waves, sounds, and the comparative performance of different hulls. In contrast with such abstractions, concrete thinking is concerned entirely with the immediately perceived qualities of an object or situation. Once something has been observed and its distinguishing characteristics noted, this observation leads without further intellectual manipulation toward one or a very few possible responses.

Since we have already established that there is in Puluwat navigation a reliance on abstractions, we must now inquire about concrete thinking in the same context. Each observation a navigator makes of waves, stars, or birds is related directly without any logical reordering or interpretation to a conclusion about position, direction, or weather. Each such conclusion in turn permits of only one or at most two or three clearly defined alternative responses. Some of the observations are based on perceptions we (but not the Puluwatans) would consider extraordinarily acute, and some of the responses are complex, but once the initial observation has been made the steps which follow upon it are unequivocal. Is this concrete thinking? Few psychologists would argue otherwise. Not only is it concrete but direct pathways of this sort between observation and response comprise the principal operational mode of the entire navigation system. In other words, Puluwat navigation is a system which simultaneously employs fairly high orders of abstraction and yet is pervaded by concrete thinking.

If these two kinds of cognitive operations, abstract and concrete, can so intimately coexist in the working mind of a Puluwat navigator, how can these same qualities of thinking in the United States provide a basis of contrast and comparison between classes of people? In the United States the abstract-concrete, middle-class–lower-class distinctions have been elevated to particular prominence in the critically important context of remedial educational programs for poor children (Gordon and Wilkerson 1966; p. 14-16). Yet it is ironic to discover that the authors who originally defined the contrast never proposed that these qualities should be used at all to discriminate between people, especially normal people. In their classic monograph on the subject Goldstein and Scheerer (1941) on the first page, before they even define the two terms, insist that abstract and concrete "attitudes" (as they call them) are mutually interdependent within each total personality. They are levels of intellectual operation differentially utilized by every person for different tasks, not necessarily differentially utilized by different people. Nor did they propose these concepts in relation to social class-determined behaviors. Their concern was better to understand the thinking of persons whose brains were damaged or who were psychotic. Although they argue effectively that both abstract and concrete thinking occur as major modalities in the cognitive processes of all persons, it is doubtful that they would have selected this particular distinction for emphasis were it not especially germane to their interests in psychopathology. However, they did. Not only that but they devised a number of tests and tasks to be used to assess these thinking styles. In time the tests were tried out on different populations from those for which they were initially designed and applied to different problems. Then, as so often happens in psychology—intelligence tests are the classic case—results of the tests came to stand for the thing they were said to measure. Thereupon all manner of distinctions became possible, including that between lower- and middle-class thinking.

A final few words need to be said about planning. As initially conceived this study was expected to discover in planning a principal basis for distinguishing the thinking processes of Puluwat navigators from Western navigators and Western thinking in general (Gladwin 1964). It seemed likely that the plans of Western navigators were prepared in advance, whereas on Puluwat plans were made up and changed continually as the person using them went along. This does not now appear to be a valid distinction. The Puluwat navigator also has advance plans which cover the entire voyage. These are the sailing directions he has learned and they are quite as complete as those of any Western skipper. The difference is rather that the Puluwat navigator has his plans available before the voyage is even prepared. He has had them ever since he learned navigation. The Western navigator in contrast makes up a new one for each trip. Thus we come again to a matter of innovation. Yet by the time both the Western and the Puluwat navigators are ready to get under way their plans are remarkably similar. They are based on somewhat different maps, both cognitive and on paper, and the process as a whole seems superficially very different, but they cover the same things for the same reasons. Probably they could not do otherwise. However diverse the intellectual traditions of the navigator, the sea is a demanding master. No style of thinking will survive which cannot produce a usable product when survival is at stake.

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PART II

SERVICES

20

MENTAL HEALTH SERVICES: AN INTERNATIONAL PERSPECTIVE

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The delivery of mental health services varies from country to country. In order to see our own delivery system in perspective, it is very helpful to compare and contrast it with developments elsewhere. As the following account illustrates, NIMH officials are increasingly utilizing such an international perspective.

As part of the NIMH's program to extend its knowledge of mental health services in other countries, staff of the Division of Mental Health Service Programs visited 10 foreign countries during 1973–7 in Europe, 2 in Africa, and Canada. During these travels, we interviewed individuals in the mental health field, observed ongoing service programs, and attended conferences and meetings.

Although the information obtained during our brief visits was necessarily limited, we were able to exchange ideas with others in mental health and related fields and we did learn about the critical issues involved in providing mental health services in other cultures and settings. It is within this context that this report is presented.

While our itineraries varied from one country to another, our emphasis was on the underlying philosophy and characteristics of the mental health delivery systems, utilization of manpower, financing, the role of government in the delivery of mental health services, and emerging trends. As examples of our specific activities, we participated in a problems conference at a Scottish clinic, spent time at a crisis center in the Netherlands and at day hospitals in Denmark and Ireland. We visited public mental hospitals in Kenya and West Germany and a neighborhood health center in Scotland. Meetings were held with the staff of The Child

Study Institute in the Netherlands, with the directors of psychiatric clinics in Switzerland and Ireland, and with staff of a psychiatric case register in Scotland. We held discussions with a community organizer in the Dublin slums, with university faculty in Scotland, with government officials in Canada and Italy, and participated in conferences in the Sudan and Canada.

The information gained has been analyzed in the light of our experience with mental health services in this country, resulting both in interesting contrasts as well as commonalities in the characteristics of mental health services in different countries. We have selected a few of these similarities and contrasts for discussion here.

By way of introduction, we should note that this report is descriptive rather than evaluatory. Evaluation in any meaningful sense would require an assessment of the total range of mental health services and an indepth understanding of a variety of factors—cultural, political, and socioeconomic—which contributed to their development in the various countries.

Some General Comments

Like the United States, most of the countries we visited have pluralistic systems, with the degree of pluralism and the number and kind of alternative services varying greatly from one to another. To illustrate, most of the countries rely heavily on public mental hospitals for the care of the mentally ill. Outpatient services are generally provided through clinics, hospitals, etc., and inpatient services are offered through general and private psychiatric hospitals. Other kinds of special programs—day and night care, clinic and residential treatment programs for children, halfway houses, emergency services, just to name a few—are also in operation, although not all such specialized programs are found within each country. Treatment by private practitioners is also available in most countries, but in some (notably Scotland, Ireland, and Denmark) in only a limited way.

We did not find mental health programs in operation that resemble the community mental health centers with which we have become familiar in this country during the past several years. However, in most areas, except Africa where sociopolitical factors make the appropriateness of the "community" approach questionable, there is an increasing interest in and an emerging trend toward a community-based approach in the provision of mental health services.

With regard to the specific transferability of our particular model of community-based care, a Danish psychiatrist indicated that the community mental health center model is not relevant to Denmark. Similar opinions were expressed at a meeting in Canada where a great deal of debate took place over the utility of the community mental health center model to the Canadian scene and over the question of its replicability in that country. On the other hand, community approaches have already been undertaken in slum areas in Dublin and a high Scottish official was quoted as calling for community care of the mentally ill, apparently as a result of pressure from citizen groups. On the whole, our perceptions were that the *conceptual* acceptance of community-based care is quite widespread but not yet widely manifested in the implementation of programs, and that major institutional changes must still take place before the concept is implemented on a wide scale basis.

Along these same lines, the patterns of utilization and organization of state hospitals and alternative community treatment facilities are of interest. In Denmark, for example, there has been an increasing trend recently toward decentralization of responsibility for public hospitals from the central government to the counties and a plan has been proposed to decentralize even further by establishing small inpatient units throughout the country as alternatives to the large public hospitals. The Swiss public hospitals are already "sectorized"; the largest hospital in the Vaud canton (which includes the major metropolitan area of Lausanne) has 500 beds, but the hospitals in the other three sectors of the canton have only about 120 beds each.

Day and night hospitals have gained some acceptance as community facilities in certain countries. As an illustration, such programs are in operation in Germany where in one day hospital, 80 percent of the patients are chronic schizophrenics. Further examples of alternative residential facilities include special nursing homes for the aged emotionally ill in Holland. In Switzerland, an 80-bed hospital specifically for geriatric mental patients is under construction, while at the same time other chronic patients have been moved to halfway houses.

Financing and Related Issues

Many of the nations visited have health insurance programs that provide some mental health coverage. Eighty-five percent of the Dutch people are covered by a sick fund, which includes visits to psychiatrists among its benefits. In Denmark, the cost of health services, including mental health, is covered through national health insurance. Ninety percent of the costs of the Swiss system of mental health services is covered by the cantons, with an additional 5 percent coming from private funds. The German system requires a co-payment on the part of patients with incomes above specific amounts but generally covers people with smaller incomes under the public program. National health insurance is in effect in the United Kingdom countries, with the limitations (co-payments, income limitations, etc.) differing among the countries.

The insurance coverage for mental health services greatly affects their accessibility to the general public. In contrast to this country, direct accessibility into the mental health system is not common nor is it encouraged. People with emotional problems are most likely to consult their physicians, whose services are covered by insurance and with whom they have established close relationships. As a result, referrals for mental health services are made primarily by physicians.

Denmark illustrates this situation well: direct access to mental health care is practically unknown and most patients are referred to available facilities—child guidance or hospital clinics or even to private psychiatrists—by general practitioners. A similar situation exists in the Netherlands, where in addition, hospital emergency rooms may serve as direct access points. An experimental crisis center in Amsterdam, established to help care for the heavy emergency load of the university hospital, accepts patients only by referral from the emergency service of the hospital or from the cosponsor of the center, the municipal mental health service.

Reentry into the community may be facilitated by this system since patients no longer in need of inpatient psychiatric services, for example, are referred back to their general practitioners for followup and these physicians may later serve as referral sources again should these ex-patients need additional mental health care.

The specific mechanisms for financing mental health services—i.e., insurance, tax revenues, etc.—vary from one country to another but in most of them, the governmental role is significant. In addition, the extent of federal versus local control of mental health service programs also varies considerably.

To illustrate, the federal government in Switzerland has no involvement in mental health service programs—that is left entirely to the cantons. (A similar situation exists in West Germany, Bonn vis-a-vis the states.) Parenthetically, it is important to note that the cantons are having increasing difficulty funding mental health services and there is some recognition that federal support is needed. At the same time, the cantons are concerned about the possibility of consequent loss of control and domination by the central government. The Canadian mental health system is characterized by responsibility for services delivery on the part of the national government. During our visit, it was interesting that some government officials expressed opinions that more local authority over mental health programs should be introduced in order to increase their responsiveness to local needs.

In Italy a law was passed in 1968 which vested responsibility for mental health service programs in the provinces rather than the federal government. The Netherlands represents still a different philosophy. There the government does not provide direct services if these can be provided by private groups. Up until the 1960's, religious organizations were the major initiators of mental health care—with government support through grants. As an added note, in Africa where mental health services are still in the very early stages, there is widespread recognition among psychiatrists that they cannot function without the involvement and support of government.

Relationships Between Health and Mental Health

The relationships between the general health and mental health systems in the various countries were also of interest to us. As indicated earlier, the main source of referral for mental health care is the family physician, who in practice seems to determine when mental health services are necessary. In many instances, general practitioners seem to serve as caregivers before referring their patients for mental health services—prescribing medication, providing support, etc.

Generally speaking, treatment is primarily the responsibility of psychiatrists with a heavy dependence upon medication and less emphasis on psychotherapy. Psychiatrists are most prominent and influential in institutional settings and particularly in private practice where nonmedical mental health professionals are difficult to find. By and large, the insurance systems do not pay for care provided privately by nonmedical people.

Psychologists, psychiatric social workers, etc. work in schools, mental hygiene clinics, day care programs, and the like. But they do not seem to have the same status nor do they provide the wide range of services which such professionals provide in this country. The training of new careerists and their involvement in mental health services which has become so pronounced in the United States is much less evident in the countries we visited.

We found the varying status of psychiatrists working in different settings of special interest. In some countries, psychiatrists in institutional settings enjoy greater privileges and status, and greater financial rewards than do private practitioners. This seems to be true in Denmark, where there is very little in the way of a private practice tradition and private practice does not have high status. At least in part this is due to the characteristics of the financing for mental health services. As a result, private care is not equated in the public mind with higher quality. In contrast, private care, particularly in private psychiatric hospitals is well accepted in Italy and seems to have a more positive image than public care.

Problems and Needs

We found that many of the problems in the delivery of mental health services brought to our attention in the countries we visited have a commonality that transcends national boundaries and apply to our own country as well. In many places the need for additional services for children, the aged, and other special groups was emphasized. Others expressed a need for additional specialized training opportunities for psychiatrists and other mental health professionals. Still others hope to increase research and evaluation efforts, and would like the funds required to demonstrate innovative methods for providing services.

An additional and most significant problem area we noted almost everywhere was that of coordination—coordination of mental health services and coordination and integration of these services with other health and human services. The discussions struck a familiar note for us. In Denmark, perhaps the least pluralistic system we visited, psychiatric and social services have not been integrated to the satisfaction of the mental health professionals we interviewed, even though the districts for which these services have been assigned responsibility are identical. At the same time the social welfare system seems to be taking responsibility for providing services which might be considered as mental health services.

The pluralistic system in the Netherlands, so similar to our own, seems to suffer from overlapping and duplication. We were informed that these problems are particularly acute with regard to children, and that the six government ministries with responsibility for children, in the words of our Dutch colleague, are "not on speaking terms." In Switzerland, coordination between health and human services was described as "good," but based upon personal and informal relationships that may be transient. Collaboration between mental health agencies, courts, churches, social agencies, etc., is generally around specific case problems.

One effort in Scotland to help resolve problems of coordination by cutting across community lines is still in the formative stages and its fate is uncertain. A plan by the Department of Social

Medicine at Aberdeen University to develop a "community physician," a new kind of specialist, is in response to staff recognition of a vacuum in community planning and care.

Viewed retrospectively, our participation in the Institute's international program has been of great value. Through observations and personal contacts with our mental health colleagues in other countries, we have broadened our understanding of mental health services—programs, problems and prospects—in different parts of the world. Our exposure to systems in widely disparate stages of development and to professionals with varying training and responsibilities has been an important learning and consultative experience.

Information on mental health services gathered through international visits cannot be viewed apart from its sociocultural context nor can services be transferred unaltered from one society to another. But through the kind of cross-cultural interchanges in which we have participated, it is possible to identify program areas and conceptualize the foundations on which programs in other countries and cultures are built, and relate these to programs in this country.

A better understanding of mental health programs in other countries is of great help toward understanding the issues of mental health care we face here. It is an opportunity to modify the frames of reference through which we view our own programs.

We have viewed our experiences as a kind of cross-fertilization. Both we and the mental health providers in other countries have undoubtedly benefitted from the exchange of ideas and our sharing of opinions and attitudes. Through our conversations with the many individuals we met during our travels, we have come to realize that the circulation abroad of journal articles, books, etc. originating in the United States is much less widespread than we had expected. As a result, our visits helped provide knowledge about programs in this country and established personal relationships which will enhance communication and cooperation in the future.

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THE 1967 NIMH MISSION TO ASSESS MENTAL HEALTH SERVICES IN THE U.S.S.R.[1]

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In 1967 a seven-member U.S. delegation visited the U.S.S.R. under the leadership of Dr. Stanley F. Yolles, then Director of the National Institute of Mental Health. The report which follows is a summary of their observations on Soviet mental health services and illustrates the necessity of looking at our own service system in the perspective of other service systems.

When the first United States Mission on Mental Health visited the Soviet Union in September, 1967, members of the delegation agreed that our primary purpose was to observe. However, in the course of our visits to the health facilities within the U.S.S.R., of our discussions with our Russian professional colleagues and the discussions within our own delegation, it was inevitable that we would compare and contrast the organization and delivery of health services in Russia with the provision of health care in the United States.

It became immediately evident that the health care systems in each nation reflect basic national attitudes defining the relationship between the individual and the State. Therefore, while health care in the United States is beginning to be considered as an individual "right," it is provided through a voluntary partnership between public and private resources within the United States. Americans will avail themselves of the opportunity for health care voluntarily, in relation to our social and cultural customs and our economic ability to finance health services for ourselves and our families.

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[1] From *First U.S. Mission on Mental Health to the U.S.S.R.* by the same authors. Public Health Service Publication No. 1893. Washington: U.S. Government Printing Office, 1969.

In the Soviet Union, the provision of health care is a guarantee on the part of the State. However, it is more than a guarantee, for citizens of the U.S.S.R. are required to report to neighborhood polyclinics or factory medical units for regular physical examinations and prescribed treatment. Furthermore, once a Russian citizen is deemed to be in need of psychiatric care, he is registered and required by law to continue treatment for stated periods of time, dependent upon the diagnosis of his illness.

The differences in attitudes and requirements between the two health care "systems" therefore are fundamental. The stated national objectives of both countries in relation to provision of *mental* health services, however, are identical. The Russian health care system is designed to provide a continuity of care for all individuals; the national mental health program in the United States, since the adoption of the Community Mental Health Centers Act of 1963, is developing its own methodology, but the goal is the same.

Analyzed in terms of the objective to be achieved, the Soviets appear to have the advantage. As described in this report, the delivery of health care in the Soviet Union is a highly organized process which not only allows but requires the explicit formulation and directed implementation of precise goals. These include the geographic distribution of medical facilities; the assignment of specific doctor-patient ratios; the provision of salary scales and fringe benefits for medical personnel; and the planning and funding of the number and kinds of hospital beds and facilities.

Each of these components of the Russian health care system is developed to provide preventively oriented, readily available and geographically accessible care. The continuously stated axiom of Soviet health officials is that health is a resource of the State, of equal importance to other more tangible resources. The Russians believe and operate on the belief that good health for all citizens must be maintained and promoted; and that ill health must be prevented when possible and diagnosed and treated when necessary. These are the operating premises of the Soviet medical establishment.

The delegation's report on the organization, planning and funding of Soviet health services outlines the procedures by which the Russians have developed medical facilities assigned on a geographic basis to meet the health needs of the population resident in a given "catchment area." It also points out the extent—surprising to our delegation—to which the actual implementation of national policy is delegated to subordinate governmental levels exercising local autonomy to meet local situations. In practice, this autonomy makes it possible, in significant instances, for trade unions to participate in the delivery of health services by financing a supplementary supply of medical personnel, providing office space, or even operating sanitaria and recuperative facilities utilized by their workers. However, the health system is a State system and contributions of trade union, factory or workshop funds are merely supplementary.

When the delegation assessed its impressions of the scope of mental health in the Soviet Union, we agreed that it is far more narrow than it is in the United States. In Russia, mental health is identified as psychiatry, and mental health services are designed and provided as part of the medical program.

Individuals are referred to psychiatric facilities largely through medical channels—the medical units in schools or factories, the polyclinics, the physicians' home visits, or the medical emergency services. The specialized neuropsychiatric facilities—the NP dispensary, the mental hospital, the psychiatric ward of the general hospital—are all clearly defined as medical units. From the point of view of the mental health professional, the treatment system for psychiatric illnesses is parallel, but separate, from the major medical system. From the point of view of the patient, however, collaboration, consultation, and referral procedures between the medical and psychiatric facilities are so routinely practiced that his physical and mental health needs are usually met without jurisdictional obstacles between the two medical networks.

The separation of the medical and psychiatric care systems is further illustrated by the fact that the Soviets operate health care networks for adults and separate but comparable health care networks for children. Additionally, separate Homes for Invalids are operated for senile psychotics and adult chronic patients; and these types of facilities are not regarded as part of the psychiatric care network; nor are they administered by the Ministry of Health, but rather by the Ministry of Social Security.

However, the delegation found that these administrative divisions did not seem to operate to the detriment of the patients. Since the basic operating principle of Soviet psychiatry is continuity of care, that care continues whether the patient remains in a specific inpatient facility, is transferred to another, or becomes an outpatient. When a patient returns to his family, he will in all likelihood be visited by a psychiatrist in his home. In the United States, such visits by psychiatrists are still considered to be innovations; but the typical Russian psychiatrist working in a neuropsychiatric dispensary is expected to make at least 20 home visits a month.

Of major significance in the Russian ability to provide continuing service to patients is its records system. The manner of keeping and storing records is archaic by American standards, but the records themselves are extensive and the system for transfer of the patient's records simultaneously with the transfer of the patient is impressive. In one Moscow polyclinic, for example, there were medical records of 30,000 of the 40,000 individuals resident in the clinic's service area.

In utilizing the resources available to him, the Russian psychiatrist is the key figure. He is aided by feldshers, nurses and other paramedical personnel, but the responsibility for decisions regarding the patient is his.

The professional role of the psychiatrist becomes paradoxical, in the American view, at this point, because—although the strong medical emphasis within Soviet mental health extends to all aspects of the system—the areas of medical concern go beyond those of medicine in the United States.

Both Soviet and American mental health personnel are currently concerned in treating "the whole man" in relation to his entire environment. The difference in point of view stems from the differing tasks assigned to psychiatrists in the two systems.

In Russia, there is no profession of social work, and psychologists are not considered to be health professionals. The result, in practice, is that the Russian psychiatrist includes in his professional concerns the activities assigned to social workers and psychologists in the United States. The psychiatrist makes home visits; he is concerned with his patients' personal, family, and work environment and he prescribes treatment based on these concerns. The range in prescribed treatment can be illustrated by the Russian attitude toward work as therapy.

Psychiatric patients in the Soviet Union are assigned to work therapy in every kind of psychiatric facility. Most of the facilities have workshops within their physical structure, and most mental patients work for some part of the day. However, Russian psychiatric practice includes the development of a clinical theory regarding work. One result of this is that it is the psychiatrist who assigns the type of work the patient will do while he is in the hospital and the type of work he will do when he returns to his factory or other place of employment. There are no occupational, recreational, or rehabilitation therapists per se in the Soviet Union. The profession of psychiatry encompasses them all and the psychiatrist is trained to practice these skills.

It must always be remembered, however, that he does so from his medical base. Russian psychiatry emphasizes the concept of illness and stresses the somatic etiology of mental illness. It assumes that mental disorders will often be recurrent and accepts the idea that many mental patients will need periodic hospitalization. For all their progress in providing community-based treatment, the Russians seem to accept the validity of their approach to mental illness on faith and are relatively unconcerned with the evaluation of their program.

A mentally ill person may be treated by chemotherapy, by work therapy, by periods of hospitalization, and by psychotherapy. But Russian psychotherapy, for the most part, is founded not on psychoanalysis or insight therapy, but rather on positive suggestion, behavioral conditioning and instruction in better ways to think and to live. It is within these treatment concepts that Russian psychiatrists practice and they do so with noteworthy clinical flair and an empirical ability to adapt treatment to individual patients.

Their attitude of confident optimism bears further comment. The present Russian medical system has been developed from a very weak base. In 1917, there were but 30,000 physicians and few of them practiced outside the major metropolitan areas of the Soviet Union. Currently there are over 525,000 physicians who are more densely and equitably spread throughout the country; and 35,000 medical students graduate each year.

Further, much of what Russians have accomplished in the field of health has been achieved within the past generation. The second World War resulted in massive destruction of Soviet hospitals and hospital beds. Thus, the development of the continuity of care framework, oriented to outpatient treatment and short-term hospitalization, was dictated as much by necessity as by conviction. This is reflected by the fact that the highly coordinated network developed by the Russians has not resulted in a reduction of hospital admissions. They have never felt they have had a sufficient number of hospital beds and they continue to press for mental hospital construction and additional beds for mental patients.

The key to the success of their program lies in the abundance of professional staff. The average neuropsychiatric dispensary, for example, typically has 15 to 25 psychiatrists on its staff and there are 19 such dispensaries in Moscow alone. Staffs of the medical units in factories are of comparable size. The automotive factory visited by the delegation in Moscow had a medical unit staffed by 150 physicians and 450 other medical personnel. It is true that this was the largest automobile factory in the Soviet Union but the size of the health service staff was reported to be similar elsewhere in relation to the number of factory employees.

By the same token, the emergency system is richly staffed by American standards. In Leningrad, for example, the psychiatric sub-station of the emergency service was operated by 11 psychiatrists—and 22 feldshers—all available for immediate ambulance duty.

The staff-patient ratios are equally impressive in the urban mental hospitals. At the Kashchenko Mental Hospital in Moscow, there were 160 psychiatrists and 2600 beds—a 1 to 16 ratio. Similarly, there were more than 800 nurses. At the Vinnitsa Mental Hospital with 1,900 patients there were more than 100 physicians of whom 87 were psychiatrists, more than 450 nurses and over 700 ward orderlies. Over all, the patient-staff ratios were virtually 1:1.

On a ward of some 100 beds at the Ramenskoy Hospital, which is both a rural as well as a chronic facility, we found only three physicians, but even here there were 25 nurses and 35 ward aides.

What then, are the major conclusions of the U.S. Mission on Mental Health? In general terms, there can be no doubt that the Russians have developed a *framework* for the delivery of psychiatric care that is remarkable to the extent that it attempts to provide—and to a considerable degree does provide—a readily available, geographically accessible network of coordinated facilities.

This network is unique in a number of respects. First, while it is an extension of the system of medical services and receives its patients from that system, it is largely separate from it. At the most likely point of contact, for example—the general hospital—there is little psychiatric representation. While the Russians claim they are establishing more psychiatric wards in general hospitals, it was the delegation's impression that there was little "grass roots" support for such a development, and that in any event it would be of limited scope focusing primarily on psychosomatic cases and mild neuroses.

Second, the most powerful and prestigious unit in the mental health delivery system is the mental hospital. It is at the mental hospital that many of the Chairs of Psychiatry are located and it is here that much of the specialized psychiatric training takes place.

Another point worth pondering is that while the Russian system is highly organized and bureaucratic, this is not reflected in a lack of concern for the individual patient. Time and again, the delegation was impressed with the sensitive concern and individual attention shown psychiatric patients—agitated schizophrenics and senile psychotics included.

The question of how effective this network is must be answered on an impressionistic level. There are no national statistics on the prevalence of mental disorder in the Soviet Union and local statistics are likely to be inadequate. However, the delegation was of the opinion that the system *was* effective, particularly in the urban areas.

This is not to say that there are not weaknesses in the framework. The scope of mental health is considerably more limited than in the United States. Further, the Russians have yet to refine non-medical professional mental health roles to any significant degree. There are still inequities in the distribution of health professionals—despite the high degree of organization of the care network—and the quality of the uchastok physician, or "family doctor," seems a particular problem.

What can we draw from the Russian framework? A word of caution is in order. The Russian network of care reflects a particular and unique socio-political-cultural system. We cannot seek to imitate an essentially alien system; we can, however, adapt and apply relevant principles.

Within this framework, there is much to consider. We should attend to the Russian solutions to the manpower problem. The effective and large scale employment of women in the health system is especially striking. So too, is the role of the feldsher—a medical technician between the level of nurse and physician.

The emergency system also warrants special attention. Crisis intervention is more than a phrase; it is an essential and critical component of the psychiatric program and in the Soviet Union it is richly staffed and supported. It is an enviable aspect of their program.

The key emphasis, however, is on continuity of care, and that is of no less import for the United States than for the Soviet Union. We need to develop, promote and support greater coordination and more effective collaboration among our mental health facilities and resources.

In conclusion, then, it is clear that the Russians have made considerable progress toward the development and articulation of a framework that is in keeping with their national goals.

From the delegation's perspective there are questions which remain unresolved, implications which have yet to be determined, and areas which are in need of further study. However, there is consensus that the mission was a valuable and enlightening experience. Through a continuation of visits and exchanges we should be able to continue to expand our knowledge in providing mental health services. As this mission has demonstrated, this can be done in an atmosphere of mutual instruction, understanding and respect.

22

EMERGENCY PSYCHIATRIC AMBULANCE SERVICES IN THE U.S.S.R.[1]

E. FULLER TORREY, M.D.

In 1965 psychiatrists in the Soviet Union began an experiment in emergency psychiatric ambulance services which is of considerable interest to those planning services in the United States. NIMH personnel when traveling on their own, as in this case, or with official support are encouraged to study such experimental efforts so that we may benefit from others' experience.

Until 10 years ago American psychiatrists knew almost nothing about psychiatric services in the Soviet Union. There was a general assumption that Soviet psychiatry was drifting along in the wake of Pavlov's work and that American psychiatry was clearly superior.

The relaxation of travel restrictions in the past decade has resulted in the discovery that this general assumption was erroneous. Increasing numbers of American psychiatrists have visited the Soviet Union and have returned impressed by what they saw (Aronson and Field 1964; Auster 1967; Babayan 1965; Field and Aronson 1964; Hein 1968; Kolb 1966). Although most of these visits have been brief and impressionistic, one of them spanned 15 months and included firsthand observations of Soviet psychotherapy (Ziferstein 1966*a*, 1966*b*, 1967, 1969). The most important of these visits was that by the official American psychiatric delegation in 1967, headed by Dr. Stanley F. Yolles, then Director of the National Institute of Mental Health. The summary report of this group contains many impressive data on Soviet psychiatry in general and on the delivery of services in particular (NIMH 1969; Yolles 1968).

It was with these reports in mind that I undertook a trip to the

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Soviet Union in August 1970, spending 23 days in Moscow, Leningrad, and Novosibirsk (the major city in central Siberia, with a population of 1.2 million). One of the focuses of my discussions with psychiatrists there was the Soviet system of emergency psychiatric services using ambulances staffed with psychiatrists.

The 1967 delegation did not have time to examine these services in detail, and it was Dr. Yolles' suggestion that I explore them more extensively. The following is the first detailed report of these services, together with a discussion of the issues they raise. It is based on my discussions with Soviet psychiatrists, especially in Leningrad where these services were first developed. I was able to visit the administrative headquarters for services in that city as well as the psychiatric ambulance station. In addition, I attempted to obtain permission to ride in the ambulances for a day, but this was denied by the Ministry of Health in Leningrad.

General Structure

Emergency psychiatric services in the Soviet Union are one component of their system of *Skoraya Pomoshch'* ("first aid"; literally, "quick help"). In Leningrad, a city of 3.8 million, this consists of 14 ambulance stations scattered throughout the city that are in constant radio contact with the main headquarters. All but two of these stations are for general medical and surgical care and use ambulances staffed with a general physician. One of the two specialized stations has divisions for cardiology, resuscitation, neurology, pediatrics, and toxicology. The other one is for psychiatry.

The present structure of emergency psychiatric services was instituted in 1965 and is still considered experimental. Prior to that time psychiatric emergencies were treated by the general ambulance physician. The whole *Skoraya Pomoshch'* system—organized, medically staffed ambulances—dates to 1931. Since the specialized psychiatric ambulances are still experimental, each city is free to modify them as it wishes. In general, it seemed that, contrary to my expectations, the government tolerates a wide variety in the organization of local services. Thus it is as unwise to generalize about services in the Soviet Union on the basis of a single city as it would be in the United States.

Summoning an Ambulance

Any person in any Soviet city can summon an ambulance by dialing "03." This telephone number is standardized and does not vary from city to city. Every Soviet person whom I met knew this number. An operator in a central receiving station forwards the call to the proper regional emergency station. In Leningrad all calls that the operator suspects are of a psychiatric nature are forwarded to the single psychiatric emergency station.

At the psychiatric station the call is taken by a psychiatrist, who asks the caller's name and address, nature of the problem, whether such a problem has occurred before, and whether the person has been drinking. The psychiatrist may insist that a family member or close friend request help, rather than a person who does not know the patient well. All psychiatrists I talked with insisted that nonemergency situations could be screened out in this way and that this screening minimized abuse of the system.

At this point the psychiatrist may decide that it is not an emergency and may advise the patient to go to his regional neuropsychiatric outpatient dispensary. (There is one of these for each division of 300,000 population.) If the person appears to be merely intoxicated he may be told to call the police for assistance. (The police stations have special rooms where intoxicated persons can be kept overnight and receive medical care.) A simple case of disturbing the peace will also be referred to the police.

Alternatively, the psychiatrist may decide that it is a true psychiatric emergency and dispatch an ambulance. Some help in this decision may come from the psychiatric station's index card file of active psychiatric cases in the city. These cards give the patient's name, address, diagnosis, degree of agitation on last contact, and degree of aggressive tendencies; they are readily available to the psychiatrist while he is receiving the call. If an ambulance is going to be sent, it must be done within *three minutes* from the beginning of the call. Psychiatrists in Leningrad insisted that this time limit is adhered to rigidly.

The ambulance is waiting at the back door and departs with a psychiatrist, two assistants (all of whom are dressed in white), and a driver. In Leningrad these assistants are *feldshers* (medical workers roughly equivalent to our physician assistants), whereas in Novosibirsk they are nurses. The ambulance is a white panel station wagon with a red cross and the words "Specialized Quick Medical Help" written on it. The addition of the word "specialized" is the only way to differentiate it from general medical ambulances. In response to my question of why "psychiatric" was not also used, I was told that if it was, then all the neighbors would know and it might embarrass the patient. The vehicle has no siren. (Sirens are not used in the Soviet Union.)

Treatment and Disposition

When the team reaches the psychiatric emergency, the psychiatrist takes charge. He talks with the patient and determines what is needed, and his assistants carry out the orders. He has a bag stocked with a wide variety of oral and parenteral psychiatric medications. The bag I examined also contained ancillary drugs for general medical emergencies, bandages, a blood pressure cuff, and a tongue clamp for use with epileptics.

The most common types of cases were said to be acute or recurrent schizophrenia, mania, acute depression, delirium tremens, and epilepsy. Conversion reactions were common following World War II but are reported as less common now. All psychiatrists with whom I talked had the impression, based on American psychiatric literature, that suicide attempts were less common in the Soviet Union than in the United States. They asserted that such cases represent only a small percentage of emergency psychiatric visits.

In about one-third of the cases the psychiatrist is able to treat the patient and either leave him at home or take him to the regional outpatient dispensary. In the rest of the cases the patient must be hospitalized after the immediate treatment. For this purpose the ambulance has a seat with a seat belt that may be used to hold the patient if he is agitated. On either side of it are seats for the assistants.

It was impressed on me that every effort is made to calm the patient before proceeding to the hospital. The inside of the ambulance is equipped with a bright overhead light to minimize the patient's fears. There is also a stretcher with straps that may be used in extreme cases of agitation. If a patient refuses to go, he can be forced to; the legal aspects of this were covered in the 1967 report (NIMH 1969; Bazelon 1968).

If the patient is armed (rare in the Soviet Union) or thought to be especially dangerous, the psychiatrist may ask the police to accompany him in some cities. In Leningrad, however, I was told that the police are *never* called and that the rare dangerous patient is quieted by firemen with hoses. This is said to be necessary once every three or four months.

The ambulances have radios and can go directly from call to call. At any given time in Leningrad there are three such teams on duty, each working a six-hour shift. After a psychiatrist has worked two days he has the third day off. Because this work is considered to be relatively difficult, psychiatrists receive more pay and get longer vacations than they do for hospital work. Because the pay of psychiatrists (and of physicians in general) is much lower in the Soviet Union than it is in the United States, it is common and acceptable for them to "moonlight" at another psychiatric job.

All psychiatrists who staff the ambulances are fully trained;

residents are not permitted to carry on this function. In Leningrad the staff is a constant group with little turnover, whereas in Novosibirsk most of the psychiatric staff work for one or two years (often for the extra money) and then return to dispensary or hospital practice. Psychiatrists working on emergency services for longer than two years must return to dispensary or hospital practice for two or three months every two years.

In addition to the three ambulance teams in Leningrad, there are seven other cars on duty during the day. These are staffed by two *feldshers* only. They are used principally to provide transportation for patients between their homes, the dispensary, and the hospital. In an emergency, *feldshers* are permitted to administer psychiatric medications and thus can be used as backup during periods when the ambulance teams are overworked.

After the patient has been treated and left at home, the dispensary, or the hospital, the psychiatrist fills out a brief form that is filed at the patient's regional dispensary. A longer incident report is filled out for the central headquarters of the ambulance service. Finally, the patient's card at the psychiatric ambulance station is updated or, if there is none, one is made out. Consistent with all medical services in the Soviet Union, there is no charge to the patient for these ambulance services. I was unable to determine the average daily number of such ambulance calls, although I was told they occur most frequently during the night and on weekends when the dispensary is closed.

Discussion

Soviet emergency psychiatric services raise important questions for American psychiatry. From the Soviet point of view the advantages of their system over the American emergency-room system are the following:

1. *Immediate treatment.* The patient is treated immediately in the same situation where the crisis occurred. Thus the initial medication and calming take place at the patient's home, factory, and so forth rather than in a hospital setting. Soviet psychiatrists believe that this is important, not only for more rapid treatment but for continuity of care and involvement of "significant others" in the resolution of the crisis situation. I was told that calming the patient before he is transported to the hospital decreases the average period of hospitalization. Before the present system went into effect in Leningrad, 42 percent of the patients were severely agitated when they reached the hospital; the present figure is three percent.

2. Lack of use of police. All Soviet psychiatrists stressed the illogic and inhumanity of having a mentally ill person brought to the hospital by the police. As one summarized it: "It is an insult to the patient." Furthermore, they contend that the use of police is inconsistent with the rhetoric of psychiatric problems as a form of illness; if "sickness" is really involved in a medical sense, then a physician should be the person responsible for the care. Soviet psychiatry, it should be added, is strongly oriented toward the medical tradition.

3. Information at the crisis site. Although this is not stressed as often as the first two factors, Soviet psychiatrists are aware that a more accurate picture of the crisis can be obtained at the scene rather than in the emergency room from secondhand or thirdhand accounts. It was not clear to me how much the psychiatrist at the scene includes the "significant others" in therapy. In the light of American psychiatry's current interests in family involvement and field theory techniques, however, the possibilities inherent in the Soviet system are intriguing.

Other questions are raised that are not answerable without more information. The use of *feldshers* as assistants to psychiatrists has a direct bearing on current discussions in American psychiatry regarding the possible use of physician assistants.

Furthermore, it is interesting if, in fact, this emergency psychiatric system is really not abused or overloaded by social and economic problems but is used solely for medical-psychiatric emergencies. Almost every emergency psychiatric facility in the United States has become grossly abused and overloaded. One wonders if the greater availability of outpatient psychiatric dispensaries in the Soviet Union has a direct causative relationship with the reported absence of abuse of the emergency system.

Finally, it is interesting to speculate on the relationship of the emergency psychiatric facilities to other components of the Soviet psychiatric system. Dispensary psychiatrists, for instance, regularly make home visits as part of their regular work week. The idea of an emergency home visit is not unusual in any way.

We certainly need more information about such a system of emergency services—firsthand descriptions of how it actually functions. But we equally need the confidence and perspicacity to see our own system in relief. The provision of medical services, psychiatric or otherwise, is expensive. (Soviet psychiatrists are the first to admit that their system is very expensive.)

To use our resources to provide the best possible services requires that we be willing to ask hard questions. How many psychiatric admissions can be prevented by treating the crisis at the scene? Does this really reduce the length of hospitalization? What is the real effect on a psychiatric patient of being initially managed by the police? Could satisfactory emergency services be provided by a physician's assistant? Given the fact that Soviet psychiatry provides these services with approximately the same total number of psychiatrists as we have, what does that say about our present system of training and remuneration? Industries conduct cost-benefit studies to answer such questions; we tend instead to meander along on the tether of tradition.

What Soviet psychiatry can show us most clearly, perhaps, is that the ethnocentrism of American psychiatry is not justified. We must be ready to listen and learn from psychiatrists elsewhere and to extend our often myopic gaze beyond the Atlantic and Pacific oceans. Only then can we really say that we are delivering the best possible psychiatric services to the people we are supposed to be serving.

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23

FAMILY PARTICIPATION IN HOSPITAL CARE FOR CHILDREN[1]

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In the United States medical institutions, including mental hospitals, have excluded the families of patients from the care process. Observations on the utilization of patients' families in other countries raise questions about whether our rigid exclusion should not be reconsidered. The following account by a former NIMH employee focuses on the hospital care of children, but comes from a book of broader observations on all kinds of patients.

During the middle part of the 1960's the authors of this article visited about 150 medical facilities in what are known as "developing countries" in Africa and Asia to study the part played by the patient's family in care in the hospital. We found all levels of medical care and treatment for children. At one extreme a hut in the bush served as a makeshift hospital where there were not enough beds to give one to each child. The well-meaning but virtually untrained staff members supported their efforts to minister to the sick by raising baby gorillas to sell to zoos. At the other extreme, within a few minutes' travel time, teaching hospitals were so new that they fitted completely into a modern university. There highly sophisticated physicians of professorial rank were applying the latest pediatric knowledge and techniques. But no matter what the level of medical care, we found nearly everywhere that the child had the security of the immediate love and care of his mother or other relatives for 24 hours every day.

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Hospitals in Africa, South America, the islands of the Pacific, and many Asian countries are well acquainted with this practice. But Western scientists have paid it little heed. Our visits were made to learn whether the experiences in these countries might have any lessons for the West. The senior author was supported in part by the National Institute of Mental Health, for whom he was then working, and the junior author was awarded a small grant from the Division Fund.

In each hospital we asked the question, "Where is the family in this hospital?"

We found members of the patients' families in almost all hospitals. Sometimes we found it helpful to rephrase our basic question to ask, "Where is the patient without his family?" The answer told us where we would find the points of real separation anxiety. For example, it was exceptional to find any relatives with the patients who were mentally ill, retarded, or who had Hansen's disease (leprosy). However, we did find children living with their mothers in a leprosy settlement in Biafra under the watchful eyes of an Irish missionary nurse and consultant physicians. Thus, if the patient was a mother with a nursing baby or an older child who could not be cared for otherwise, we would find the child with her.

To understand why relatives come or do not come to the hospital, it is necessary to look at the child, his family, the community from which the child comes, the hospital and its staff, and the complex interrelationships among them. We are here restricting our observations mostly to situations in which the patients were children.

The Family

Let us look first at the family in the developing countries. In general, in such countries, families extend kinship relationships further and more actively than do American families. With many relatives, there is no problem of having enough family members to spell one another at the hospital and to look after those left at home. In Ghana we were told, "To know a man's family you have to know a thousand people."

The few statistics available show that women more generally than men escort patients to the hospital but men more than women seek treatment in hospitals. In cities, however, women are increasing their use of hospitals, even for childbirth. A general hospital in Kinshasa in the Congo keeps up a steady rate of 3,000 deliveries a month. At noon the husbands stream in to bring the midday meal.

Many factors induce relatives to come to the hospital with patients. One is the pressure to carry on prescribed family functions—such as cooking, which is woman's work. Another is the custom of breast-feeding babies, so characteristic in these countries that an infant usually remains with his mother even when she is the patient. Many mothers bring their babies with them when they come to the hospital to look after their husbands or older children.

Pakistan is one of the Moslem countries in which many relatives must accompany a man to show his status in the community. A physician at one Pakistani hospital described such a troupe of relatives as "the bridal procession of the patient." In many African countries, a relative who is not at the bedside when a patient dies will be blamed for sorcery. This practice encourages members of the family to be present at the deathbed or to make strong efforts to bring a patient home to die. Some hospitals prefer that families take a dying patient home, because a death on the wards might be blamed on the staff and could lead to a mass exodus of patients.

Relatives often come along with patients to protect family secrets—an especially potent reason in Liberia, where secret society membership is a primary social obligation. Community pressures are strong to assume responsibility for the young, to revere the aged, and visit the sick.

On the other hand, sometimes the cost of keeping the patient at home is so great that the family abandons him. For example, in some areas families commonly reject children with burns or who have otherwise been handicapped or disfigured, fearing that they will be unable to get a job or to marry when they grow up. The family may also cast off a relative they regard as incurable, such as a leper.

Occasionally a nursing mother remains at home when one of the members of her family is hospitalized.

Distance seems of minor importance. Africans and Asians walk many hundreds of miles to be treated at a certain hospital or by a particular doctor; almost invariably a relative goes along. In India we found patients who had traveled 2,000 miles to reach a particular clinic. However, when a family lives close to the hospital, the relatives may spend less time at the hospital than when they have come from a distance. Much depends on the availability and the expense of transportation.

Hospital Policies

We found that the nature of the hospital is perhaps the most important factor in determining the presence or absence of the family. In many hospitals, including children's hospitals, the staff members welcomed the families of their patients. However, teaching hospitals built with foreign aid—attempting to qualify for international credentials, striving to be centers of research, and staffed extensively by Western expatriates—had limited family participation. In such hospitals we were often taken to see a magnificent laundry, a simulated ward for instruction, or some piece of laboratory apparatus.

What the teachings of such centers augur for the future of family relationships in the hospitals in these countries remains to be seen. In India some teaching hospitals are being set up or remodeled in the style of the rural hospitals in which most of the medical school graduates will work.

Hospital policies and staff attitudes strongly determine how much the family participates in caring for the patient. Each hospital we visited had a family policy—either explicit or implicit. Sometimes this was dictated by the government. For instance, in Zambia, the government policy included payment not only for the child's hospitalization but also for his mother if her presence is judged essential to the patient's recovery. In another African country, using hospital resources to help family members stay in the hospital was prohibited, but hospital authorities often looked the other way.

Local hospital policy tends to be more powerful than national policy in any case. Often we discovered a hospital's policy by asking: "Where do members of a patient's family go in the hospital when they cannot be with him?" The attitude of the medical officer in charge usually explained the answers. For example, to keep mothers out of the wards, the physician-director of a hospital in Kenya set up a verandah for their use. The mothers found it cold, and—in spite of an occasional midnight raid by the staff—usually sneaked inside to comfort their children and to keep themselves warm.

The director of a hospital in Tanzania told us that the family policy "cannot be left to hit or miss. If it is thought through, the families create no difficulties." In Nigeria a hospital director told us, "It is important to have the role of the family in the hospital defined. The doctor must tell the family how far it can go . . . he determines whether or not the staff trust family members and give them recognition."

One doctor planned to make his hospital rounds during the afternoon when he knew members of the families would be visiting. On the other hand, a few doctors ordered the families out. After an American doctor who ran a pediatric ward in one African hospital did so, he found the mothers clustered around the windows reaching through and touching the hands of their lonely children.

In some hospitals, because a policy had not been set by the doctor in charge, we found open warfare between the families and the nurses. However, in many places we were convinced that the nurses had more influence than doctors in determining the policy toward the family. Indigenous nurses tended to give in to families; most nurses from the West had early in their tenure come to some resolution of the differences between their training and the local family and hospital customs. Some nurses saw the patient as their only responsibility; some saw the whole family as the hospital's clients. Some nurses seized the opportunity to teach good health habits to the patient's relatives and to treat them at the hospital.

Much seemed to depend on the nurse's differentiation between the roles she assumed and those she allotted the patient's relatives. The nurses reserved treatment functions for themselves and the doctors, but how they defined treatment varied from hospital to hospital, and depended upon their willingness and time to train mothers. We learned how nurses regarded the family when nurses told us what they alone should do, and what mothers were expected to do. In one hospital mothers would be given the tasks of giving the child his medicine at the specified time and taking and recording his temperature, while in another hospital even bathing the patient would be regarded as a part of the nurse's job.

Relatives' Roles

Relatives took on many tasks, however. In some places they only served as informants about the child at the time of admission. In others they provided full physical care: prepared food; fed, bathed, dressed, exercised, and toileted the patient; did laundry; cleaned the room; dressed the patient's hair; and watched over him. The relatives were effective communication links, keeping the nurse and doctor informed about the patient and other important matters, orienting the patient to the hospital, telling him about his illness and his treatment, sending news back home to the village, and bringing messages to the patient. In some hospitals, the staff even used the patient's relatives to instruct patients about their condition.

Problems arose only where mothers and nurses were allowed to compete, and where nobody took the time to define the separation of functions. Mothers could be as competitive as the nurses: some who did not like what the nurses were doing had no compunction about doing the work over. Occasionally a mother picked up her child and moved him to another hospital or took him to a native practitioner. Sometimes she persuaded all the rest of the mothers to leave the hospital in protest—a maneuver that greatly increased the sensitivity of staff to the personal feelings of the families!

Many hospitals did a great deal of improvising to make the families feel at ease. They kept newborn babies next to their mothers. In the wards for older children, the hospital in Kinshasa had built cubicles of glass, with bed, crib, wash basin, and storage space that separated each mother and child from the others on the ward. The point was to prevent cross-infection while keeping them from feeling isolated. At the College of Medicine, in Taipei, Taiwan, the beds were especially made so that mother and child—who normally sleep together at home—could be accommodated in the small rooms.

In some places porches, sheds, hostels, and villages were used to house the relatives of hospital patients. Even so, many relatives often made nests under the patients' hospital beds, sleeping on the floor as they did at home. We saw the "ultimate" in family participation; four relatives were sleeping on the bed, and the patient—who was frightened of the bed because he had never slept in one—was on the floor under it.

Many hospitals allowed their patients' relatives to build a kitchen where they could go to cook what they liked, to think things out, to gossip and laugh, or be together in crowds instead of being shut up in separate rooms. Other hospitals provided the patients' relatives with facilities for storing possessions, visiting, tending to sanitary needs, learning about health care, and playing.

Such efforts to give the members of the patient's family a feeling that the hospital is a natural part of the community helped overcome suspicion, anxiety, and timidity. As one German doctor said, the hospital then is "not cutting so much the roots." In contrast, handsome modern hospitals modeled on those in industrial countries often frightened the families away.

Premature Babies

Freedom for experimentation also promoted family participation. The program for premature babies at Baragwanath Hospital outside Johannesburg, South Africa, is an outstanding example. The hospital could not afford incubators, so Erich J. Kahn, M.D., now head of pediatrics at Harlem Medical Center in New York City, turned the whole ward for prematures into an artificially heated and humidified incubator. He daringly set up facilities for mothers in an adjoining ward and required them to live in and help care for their infants.

We arrived at Baragwanath just before lunch to visit one of two identical units that took care of 80 premature babies. Lunch was served to mothers on a porch where some of them slept. All the mothers were dressed in hospital clothes and wore white caps over their hair, even a women with an immense woven coiffure. The head nurse rang a bell; the mothers scrubbed as if they were going into surgery. They put on masks and lined up at the door to the babies' room for a squirt of antiseptic on their hands. Then, happily, they filed into the room; each took up her station on a chair beside her baby, expressed her milk into a bowl, and took it to the nurse who recorded the amount to be sure the mother was not trying to "dry herself up."

Each of these mothers had begun to take care of her baby from birth; she fed him by whatever method possible, and by the time he weighed 4½ pounds, he was put to the breast, even if he needed supplemental feeding. Through this experiment the death rate of the premature babies had been reduced from 70 percent to about 20 percent—a level equal to the rates in New York City and London.

Curiously, Dr. Kahn's efforts to duplicate his program in Harlem, where there is an unduly high premature birth rate, met a wall of resistance. Some opponents said they feared the babies would get second-rate care because no comparable model existed in the best hospitals in this country.

Benefits

Although there are drawbacks in letting relatives have free access to patients in the hospital—as they have in developing countries—there are also many benefits: overworked staff members are able to use their time for professional functions; money can be spent for drugs and treatment instead of basic domestic provisions; and the quality of care is raised. For children who are protected by the rituals of family relationships, regular continuing contacts with parents and relatives offer more psychological support than any contrived expressions of affection and concern or any gift.

Where families are allowed freely in the hospitals, patients are more comfortable. They are insulated by their relatives when they need to be sheltered; when they are lonely their relatives help them have contact with other patients, with other members of their families, with the hospital staff, and the community at large. Psychologically they feel secure. We noticed how relaxed the children were; they seldom cried, banged their heads, or rattled the bars of their cribs. In fact, mostly they were on big beds that gave them comfort and scope. They could remain as active as was good for them under the watchful supervision of their mothers or other relatives. The noisiest children's wards were those in which mothers were not allowed.

Members of the patient's families grow in their understanding of illness and health. They learn how to monitor the patient's condition if they do not already know how. Being in the hospital around the clock, they are less likely to panic needlessly as changes occur in their patients. By the same token, the staff is more likely to take the patient's relatives seriously when they come to them in alarm. The hospital becomes a living school that trains agents to work for medical advancement, sanitation, and public health at home and in the community. If hospital staffs are not always enthusiastic about having families present, at least they usually acquiesce.

In our own country, when we increase our efforts to overcome the isolation of patients from their families, we shall be changing policies on a nationwide scale. We shall be forcing serious examination of existing policies about the place of the family in our national hospital and health programs. We shall be demanding changes in the laws and regulations that block humanization of patient care.

We shall be striking at the very foundations of professional careers and institutions in asking health insurance plans, group health schemes, union contracts, and Federal funding to support family participation in hospitals and care for the sick. We shall be calling for revisions in the standards for hospital safety, construction, and professional practice. We shall be asking hospital administrators to change their methods of accounting and record-keeping, their rules, and regulations. We shall be demanding that businesses and industries that profit from the technology of our hospitals develop the heart to invest in families.

Participation of the family in hospital care is not an exotic curiosity, but a natural expression of family conviction strongly adhered to in three-fourths of the world. The practice is followed because it is a humane response to the rights of children. We believe that access to the best in health care is a right for all the children in our country. In our minds, it follows that family access to children in hospitals is equally a right. Thus, we hope that professional persons trained to work with children in hospitals will join us in translating such rights inro realities.

PART III

TRAINING

24

FOREIGN RESEARCHERS IN OUR LABORATORIES

GIAN C. SALMOIRAGHI, M.D.

In addition to supporting research elsewhere, NIMH also has its own intramural research laboratories. Into these laboratories come Visiting Scientists, Visiting Associates, and Visiting Fellows from other countries. They bring an international perspective to the ongoing research which enhances it and provides a healthy preventative against provincialism.

While the language of science is universal, scientists speak and write in many tongues. Today they are principally using English to communicate with one another. Fifty years or two generations ago they were using German, French, or British English. In another 50 years it is possible that the "common language" of science may be different, depending upon which country will then spearhead the scientific effort of mankind, as "America" (i.e., the U.S.A.) has been doing this past generation and as Germany, France, and England did before her. While it is true that no country in modern times has ever acquired a monopoly on genius, scientific or otherwise, it is nevertheless historically true that as the temporal and spiritual powers of a country rise so does her relative influence in science and technology.

Scientists have always been a rather mobile lot throughout the ages and the 20th century is no exception in this respect. What has been remarkable in recent years is the number of European and Asian scholars coming to our shores, arousing fears elsewhere of a "brain drain," to and by the United States. This tempest-in-a-test-tube has now lost some of its more chauvinistic overtones in part, one hopes, through the realization by all concerned that the best antidote against a flight of talent rests less in restrictive immigration laws than in heightened opportunities for self-fulfillment at home.

Scientists are both thinkers and doers and seek out an environment congenial to both kinds of efforts. Fragments of information are elaborated into hypotheses which need the crucible of the experiment for confirmation or rejection. The more complex the problem, the more rudimentary are the fragments of relevant information and the greater the caution that must be exerted in formulating a working hypothesis. Of the greatest help in this respect is the interaction with other scientists within the same institution or outside. The number, kind, and quality of one's colleagues, the ease and frequency of communication with and among them, the presence or absence of administrative barriers to personal and professional interactions are among the factors that stamp an institution as favorable or unfavorable to scientific pursuits. But in addition, the tools must be at hand for translating hypotheses into experiments and here the wealth and the attitude toward science of a particular society play the critical role.

It has become fashionable the past several years to deprecate science as "big business" and conjure up thereby a vision of ruthless scientific robber barons on the loose, preying upon an innocent, idyllic society through the connivance of politicians and bureaucrats. While possibly true that greediness and ambitiousness should be held objectionable even when in the service of a good cause, it is simplistic at best to believe that "bigness" is merely the result of evil intent. For the biomedical sciences at least, a more rational explanation for the socialization of researchers and the growth of specialized research institutions worldwide, can be found in the nature and complexity of the problems we are now capable and willing to tackle. As we learn to cure and prevent ancient ills of the body, the more intolerable become those ills of body and mind that even a short while ago we would have dismissed as incurable. With each new lead uncovered, there is hope renewed that our goals are attainable, so long as the will and means to persevere are there. Because, if modern science has indeed acquired some of the connotations of "big business," it has also retained all of the elements of the "big gamble."

Perhaps the noblest gamble of them all is our endeavor to fathom the brain as a first step towards a comprehension of the human mind and its pathology. For this, we are requiring the human mind to fashion the tools that are necessary to explore and ultimately comprehend itself. An arrogant paradox, perhaps, but not an impossible dream, at least insofar as seeking new ways of ameliorating the lot of those among us whom, with great compassion and little scientific comprehension, we call the mentally and emotionally ill. Much we have achieved in this respect the past 20 years, enough to give us confidence in the paths we follow, although we are well aware that the goals we seek are still elusive.

In this endeavor, the "centers of excellence" are few, worldwide. Our Intramural Research Program is one such center. Unavoidably, it is a powerful magnet that attracts talent from other lands. Also unavoidably, it is constantly in the market for promising leads and the talent that can generate such leads. Without the steady material and spiritual sustenance that it receives from the NIMH and ultimately the American taxpayer, it would soon cease to be a center of excellence. Without an international outreach it would probably lose some of its luster and effectiveness.

Foreign researchers join our laboratories by invitation, through our Visiting Program. They are proportionally few in number at any one time and their stay is typically of 1 to 3 years' duration. At one end of the spectrum are the Visiting Fellows. These are individuals with a doctoral degree in medicine or allied health sciences, and whose postdoctoral experience is less than 3 years. They come to the attention of our senior scientists through their contributions to the scientific literature and their presentations at sponsored meetings—congresses, symposia, workshops, and the like. Spotted as up-and-coming young talent, they are invited to come for further training through active participation in ongoing projects of the sponsoring senior scientist.

At the other end of the spectrum are the Visiting Scientists. These are individuals with more than 6 years of postdoctoral experience, whose exceptional experience enables them to make a significant personal contribution to the research program of the sponsoring laboratory. In between are the Visiting Associates, individuals of between 3 and 6 years of postdoctoral experience, whose knowledge is needed to further a particular research study. In these two instances also, appointments are made on an invitational basis only.

Implicit in this outline of our Visiting Program are several assumptions worthy of brief consideration. One is the essentially symbiotic nature of the relationship that exists between ourselves and our foreign colleagues. This relationship is grounded on self-interest on both sides, ensuring a mutually satisfactory outcome. We invite foreign researchers to join us for a limited time to meet specific programmatic needs. In some cases, this is because of the unique talent vested in a foreign researcher whose work provides the opportunity to quickly explore, with a limited investment on our part, what appears to be a promising lead. In other cases, grafting a talented young researcher of foreign background to an ongoing project speeds up its conclusion or broadens its scope.

On the other hand, there are equally important benefits running the other way. For the younger researcher, the opportunity to be immersed full-time in the research environment of our laboratories working frantically at a project with which he is fully identified, serves as a catalyst for achieving professional and personal goals, while setting standards against which he may measure future performance at home. For the established scientist invited to try out a new lead with us, there are the advantages of the interaction with senior colleagues of outstanding reputation, the multi- and interdisciplinary nature of our laboratories, the professionalism of our enterprise and the availability of up-to-date instrumentation, making the exploration of a new working hypothesis more thorough and easier.

Another aspect is "economy," in its multifaceted meaning. At the crudest level of institutional self-interest there is the benefit derived from the temporary use of human capital (i.e., the foreign researcher) at no or minimal cost for development. But equally important, on the other side of the coin, there is the enhanced capability of the foreign scientist for efficient and effective research in his chosen field upon his return to home institutions, with all that this implies economically for them and their governments in terms of saved costs of false starts and unpromising leads.

At another level of economy is the lessened misuse of talent worldwide. Exceptional talent is a scarce commodity in any field of human endeavor, particularly when, as in research, there is the need for two seemingly opposite traits to coexist within the same person: the ability to be rigorously analytical while at the same time being so imaginative as to see clearly well beyond the grain of sand or the pebbles on the road immediately ahead. As I said earlier, this kind of talent tends to gravitate towards those places and institutions where it can find its equals and the material support it needs to express itself to the fullest. This is not a unique phenomenon peculiar to scientists: cream-of-the-crop lawyers and theologians, as well as artists—or skindivers for that matter—show the same tendency. Nor is such a gravitational pull of talented individuals towards one another solely a contemporary social phenomenon. On the contrary, "centers of excellence" in one or another field of human endeavor have existed throughout the centuries of recorded history, wherever and whenever the social conditions for their establishment and sustenance were right. And concurrent with their establishment, growth, and demise was the migration of artists and scholars from one to the other in perennial search of a patron and of each other. But buried within these historical antecedents there seems to be an element of contemporary managerial wisdom—namely, that the circulation of talent among outstanding institutions worldwide is always beneficial if it maximizes the utilization of scarce human and material resources.

Lastly, a word on the long-range benefits of such an association between domestic and foreign researchers. Brought together by mutual interests, their wits sharpened by supportive and yet competitive interactions along the path of the common struggle, they develop lasting respect as well as friendship for one another, so that the professional and personal bonds thus created remain strong once the foreign colleague has returned home. There is much that he is taking home of personal and professional growth and much that he has left behind in kind, of equal value to his hosts. Having changed somewhat through his experience abroad, he may be more competent to make use of resources at home. For certain, he will continue to share his thoughts with his colleagues and former associates here, contributing to his and their further development. Through this "invisible college" new thoughts, new hypotheses, new leads are passed along very quickly among its members, by letter or personal interaction whenever they meet at scientific gatherings here or abroad. It is both a sharing and a prodding in which all gain. And not the least to benefit are those who support our efforts and those, the sick, whom we seek to help.

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FOREIGN WORK-STUDY ASSIGNMENTS

JOHN C. EBERHART, Ph.D.

In addition to inviting foreign mental health specialists to this country for brief periods, it is also possible to send selected American personnel abroad to learn and broaden our vision. This is the purpose of foreign travel and, as described below, foreign work-study assignments for NIMH personnel.

In the effort to maximize the value of NIMH staff members, the Institute has utilized most of the forms of training and developmental experiences available to it. It has proceeded on the assumption that (a) it should recruit employees with as extensive prior training as needed for their posts, and (b) that it should support the further career development of its staff with opportunities for supplementary training and experience as these appear indicated. Included in the latter are course work at nearby colleges and universities; opportunities for brief or longer visits to other laboratories, hospitals, or universities; exchange visits with universities and with State and local institutions; and what has come to be called a work-study assignment abroad.

Many of the NIMH professional staff have come to the Institute from academic posts in good universities, where sabbatical leave has been a fact of life for several generations. They know the value to an intellectual or professional career of a significant period of time (6 months to a year) spent in a new environment on study, writing, or research, as a way of bringing oneself up-to-date, and of securing the kind of intellectual refreshment so valuable in supporting a new career phase and in illuminating a phase just completed. For many reasons, to be discussed briefly below, the experience of studying and working in a foreign country is generally prized as the most stimulating variety of sabbatical.

An example or two will make more concrete what I have to say here. In the summer of 1964, Dr. Melvin Kohn, Chief of the

Laboratory of Socioenvironmental Studies in the NIMH Intramural Research Program, flew to Oslo, Norway, to begin a year's work-study assignment at the Institute for Social Research, University of Oslo. Dr. Kohn had been a member of his Laboratory since 1952, engaged quite strenuously in full-time research on a series of problems, of which the two central ones had been the epidemiology of schizophrenia and the study of the relation of social class to values. He spent much of his time in Oslo, reviewing previous research, studying, writing a comprehensive account of the epidemiology of schizophrenia, consulting with psychiatrists and social scientists about his research and theirs, and lecturing at the University on his research. He also traveled considerably throughout Norway to find out about their social science achievements, and through that process, to understand the Norwegian society. He went along on some field trips (including one, a 25 km. ski trip over the mountains to isolated farms for a study on social isolation) and in that way got more entree into the society. All of this contributed in important ways to the main purpose of his year abroad—to see his work, and to see the society on which his research was focused, from the perspective of another culture. It was not only a very profitable year—he described it as the most stimulating one of his NIMH career.

In August 1968, Dr. Morton Kramer, Chief of the NIMH Biometry Branch, flew to London for what he described some years later as "the best 10 months of my life." In that period he served as a visiting scientist at the Medical Research Council Unit on Social Medicine, and as guest lecturer in the Department of Public Health Administration of the London School of Hygiene and Tropical Medicine. He was attracted to these institutions because of the historical importance of the School of Hygiene in the development of epidemiological and public health research, because of the excellence of the staff of both units, and because both were headed by Dr. Jeremy Morris, an outstanding epidemiologist and an ingenious and stimulating expert in social medicine. Dr. Kramer, who was already an acknowledged world expert on mental health statistics, wanted to learn all he could about epidemiology and its uses in mental health research, in planning for mental health services, in administration, and in the evaluation of health programs.

All of these he did, working from an office provided him in the School of Hygiene. He participated with other faculty in designing high level training for graduate students in public health, lectured to the students there and to the psychiatry residents at the Maudsley Hospital on mental health statistics, carried out his own research on data from the National Health Service, showing how patterns of hospital use vary by age, sex, and marital status, and collaborated with staff of both units in joint research, some of which continued after he returned to the NIMH. As a result, in part, of the year's association, the School of Hygiene created a chair of mental hygiene, which they had not had before; and plans were made for one staff member to spend a year in the United States.

New knowledge, new research techniques, mutual exchange of views, and mutual influence on research and training—these made the year outstanding.

For the biological scientist the work-study assignment is usually to a university laboratory so that he can engage in part- or full-time research. The pace of biomedical research has been so rapid in the past two decades that a scientist of the first rank cannot afford to, and usually does not want to, absent himself from the laboratory bench for a year. Yet he needs the opportunity to work closely with other world experts, to learn from them and thus to avoid as many as possible of the time-consuming blind alleys that delay research. An example is Dr. Louis Sokoloff, Chief of the Laboratory of Cerebral Metabolism, who spent the academic year 1968-69 in the biochemistry laboratory of Dr. Jacques Nunez at the College de France. Dr. Sokoloff, a physician, physiologist, and biochemist, was deeply engaged in studying the problem of the effect of thyroxine on protein synthesis in the developing brain, and knew from previous contact that Dr. Nunez and his colleagues in Paris had much to contribute in both method and theory to a solution of the multiple problems involved.

In Dr. Nunez' laboratory he spent about half his time at the bench doing research, and the rest in study, reading, and attending lectures and seminars. During the year he made a concentrated study of enzyme kinetics and enzyme regulation and was able to master these to the point that near the end of the year he gave four, two-hour lectures—in French—to graduate students at the University of Paris. He visited and was visited by many of the outstanding biochemists in France and learned their approaches and methods. Outside of working hours he became, for the year, a "citizen" of France—the best way, he feels, to develop international goodwill.

Work-study assignments to American universities and laboratories are also available to scientists and other staff members, and a number have chosen such assignments. It is a fact, however, that the foreign assignment, despite its extra costs to the staff member and its frequent hardships and difficulties, is unquestionably the most sought after and seems the most useful. There are several reasons for this:

1. Scientists are members of a world community insofar as their science is concerned. They are as close intellectually to colleagues in other countries as they are to those in this country, yet they know the United States better, they are in closer touch with domestic laboratories, and there are fewer mysteries here.

2. Program specialists and leaders in a Federal Agency like NIMH are, by the nature of their job responsibilities, familiar with U.S., State, and local programs in research, service delivery, biometrics, and training. Many such programs they have helped design and most they have helped support. This is not true for foreign countries. Though the problems of mental illness, alcoholism, drug abuse, and others are all but universal in both developed and developing countries, U.S. specialists are much less familiar with the nature and success of foreign efforts to cope with these problems. Hence the need of Americans to visit, examine, and learn, not just program description, but the society and culture which account for the special nature of the problems and the (often) unique solutions.

3. The writer once questioned about 20 medical school faculty members who had been granted fellowships by a private foundation, on whose staff he then served. The fellowships, generous for the time and permitting independent work or study wherever the fellow wished, had been taken in all but one case in institutions outside the United States. Were the reasons for the foreign preference superficial or fundamental? Was the 6 to 12 month period just a *wander-jahre*, a vacation, which is more exciting abroad, or were there more important reasons for the choices? Though foreign travel is admittedly interesting for many, the writer and his colleagues, and even some skeptical members of the foundation's board, became convinced that there were sound intellectual and scholarly reasons for the desire for foreign experience. Among these were the availability of new substantive knowledge abroad—about research theory, method, or findings, and about social needs and program solutions—and in addition, the more subtle but more pervasive stimulation of the foreign scene on the mind. The scholar, scientist, or program expert is likely to get a new liveliness and new insights from a year's association with colleagues and ordinary citizens who come from a different society with different history, customs, language, and values. He sees himself and his work in a somewhat different perspective, and it sharpens his self-awareness and self-evaluation in important ways.

It is of some interest to note that over the past 25 years NIMH staff members on foreign work-study assignments have chosen to go to the United Kingdom most frequently, with Switzerland, Italy, France, and Israel next in frequency. For special research purposes more exotic countries have been needed as sites—such as Iran for research on hashish use, Lebanon for study of the psychatric impact of culture contrasts, and Kenya for studies of the psychobiology of large rare mammals.

The NIMH has a scientific and professional staff of approximately 225 in its own laboratories, more than 90 percent of them M.D.'s and Ph.D.'s. An almost equally large group of experts staff the extramural programs of the Institute. Foreign work-study assignments are needed for selected individuals from these groups to acquaint them with new developments in their fields, to enable them to recharge their intellectual batteries under new and stimulating conditions, to prepare them for new or wider responsibilities in ways which domestic institutions cannot do, and to provide opportunities to develop new scientific skills and sophistication under world leaders. The Institute has been firmly committed to a policy of career planning and staff development, as the best way (really the only way) to recruit good staff and preserve and enhance their effectiveness over careers of long duration. Without such opportunities it would be difficult to carry out the Institute's responsibilities for leadership in mental health research and service programs.

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INTERNATIONAL ASPECTS OF ANTHROPOLOGY FELLOWSHIPS

BELA C. MADAY, Ph.D.

As the importance of the cultural aspects of mental illness was fully realized, NIMH embarked upon programs to insure their understanding. One such program was a training support program of fellowships in anthropology, designed to create a cadre of behavioral scientists who could understand and interpret cultural antecedents of both normal and abnormal human behavior.

Throughout the early history of psychiatry, mental health practice consisted of custodial treatment in large mental hospitals and of intensive psychotherapy, mostly for middle-class patients by middle-class practitioners, who usually correctly assumed that the social-cultural world of their patients was not much different from their own. The contemporary attempt to make psychiatric treatment available to the whole community has created unexpected problems, mainly posed by the presence of cultural barriers between patient and practitioner. To understand the total man, psychiatry, like medicine in general, finds itself compelled to look beyond the individual at the cultural context of which the patient is a product and with which he interacts. It also has to consider the cultural background of the mental health practitioner, especially when it is markedly different from that of the patient, and find ways to bridge the gap between the two. This knowledge of cultural contexts is often not readily available, and therefore psychiatry has to reach out to the social sciences, notably to anthropology.

The data the practitioner needs cannot be obtained efficiently in libraries or in artificial laboratory settings, but has to be gathered painstakingly in the field, in the living culture, from and among the people under investigation. Consequently, the fundamental training of the anthropologist includes an extended period of field work in a culture other than his own. At some time during his graduate career (occasionally even in his undergraduate years), after having satisfactorily versed himself in theory and methodology, acquired a proficiency in the language, studied the history of the people from available sources, and made appropriate arrangements with the government and the academic community of the host country, the anthropologist is required to go and live with a group of strange and foreign people and participate in their life for at least a cycle of four seasons. This major scientific undertaking at the predoctoral level frequently becomes the most important research experience of the anthropologist's career.

The cultures anthropologists chose in the past were usually simple ones, a village or a tribe, in which the cultural components were relatively few in number and more easily discernible than in complex, industrial societies such as that of the United States. The anthropologist's interest in the remote and the bizarre, which has given his profession a romantic reputation, has nevertheless made important contributions to our understanding of behavior in our own society and in man in general.

From field work among the "primitives" came the general theory of cultural differences, postulating that societies with identical problems may have different solutions for them. The grid of interrelated, culture-specific reactions to human problems sets a pattern for life, determining the behavior of the group and of its members. It also determines to a large degree the individual's perception of his environment and of the world at large. Personality patterns differ from one society or stratum of society to another. People behave as is expected by their culture. Thus, culture is at the root of many behavioral disorders, both their genesis and their resolution.

Anthropologists frequently inquire into how the form or pattern of aberrant behavior relates to the cultural forms and personality traits that everyone in society shares. For example, Dr. Laura Nader, professor of anthropology at the University of California, Berkeley, observed in her field work among the Zapotec of Mexico that drinking had different meanings in different social settings. It was considered bad for a man to drink alone; good to drink in company; courteous to drink in the courts of law; improper to drink in the presence of a ritual kinsmen, unless invited; etc.

Cross-cultural studies may lead to the rethinking and reevaluation of certain social processes. It has been believed, for example, that socioeconomic factors such as income of parents and residence patterns alone predict the success of children in schooling, but in a study made at Kula Ho'o Mau, an experimental school for potential public school dropouts at Hilo, Hawaii, socioeconomic factors were found of little use in explaining the success of Japanese, Haole, Chinese, and Korean students as against Hawaiians, Puerto Ricans, Portuguese, and Filipinos. All these cultural groups migrated to the islands to find a better life, but for one reason or another some ended up at the top and others at the bottom of the socioeconomic pyramid. Dennis Cabral and his fellow researchers are convinced that culture-specific factors and cross-cultural interactions play an important role in the socioeconomic stratification and the consequent deviance as manifested by unsuccessful adjustment to the formal educational system.

Because of the nature of its methodology, anthropology is a true international science. It derives its basic data from virtually all societies of the world and compares its findings across cultural and subcultural barriers. This large-scale international enterprise contributes greatly to international understanding, indirectly by strengthening social science theory and directly by actively promoting understanding among peoples.

Although the profession is international in scope, many American anthropologists attained their first cross-cultural experience by living with American Indians. This was a convenient arrangement because of the proximity of the reservations to the universities and the relatively inexpensive manner in which such research could be executed. However, the growing number of anthropology students and the diminishing number of Indian isolates led to saturation on the reservations, to a point where it was said that an Indian family consisted of father, mother, children, and an anthropologist. In addition, the growing self-assertion of the American Indian resulted in resentment of "being studied" by the white man, a condition which may become even more intense as time goes by.

As the need for anthropological knowledge in mental health practice became more pressing and the necessary field training of anthropologists more difficult to arrange, the NIMH decided in 1958 to support the field training of doctoral candidates in anthropology as a corollary to its fellowship program. Recommending the program to the National Advisory Mental Health Council, the NIMH said:

> The rate of various types of psychoses, the rate of other severe and mild psychiatric disorder, the type of alcohol use and the amount of alcoholism, the rate of suicide and of homicide all show great variation in different cultures or subcultures. We are only beginning to understand the reasons for this phenomenon, but it is clear that cultural context is one of the major sources of variability in pathological behavior. Therefore, it is

> important that data on rates and types of pathology in various cultures be collected . . . and the functioning of cultural systems be understood.

It was mainly U.S. Government assistance that made doctoral training in anthropology truly international. Between 1959 and 1973, some 535 doctoral candidates, conducting research in over 100 cultures, have received NIMH support. At an average cost of $4,000 per project, this investment has been extremely profitable. The principle benefits derived are the following:

1. Almost every project generated descriptive data on behavior in a specific cultural setting.

2. Many projects contributed to social science theory and methodology.

3. Findings of many research projects conducted abroad have been applied to the U.S. scene and have assisted in the solution of the mental health and social problems of the nation.

4. In almost every good research project, researchers channeled information they had gathered back to the host country by participating in discussions, seminars, and lectures at host-country universities after the completion of their research. Many researchers sent copies of their finished products (dissertations, books, articles) to key institutions or individual scholars of the host country. These arrangements assured a wider use of the data and gave the host country something in return for its hospitality; they also provided opportunities for researcher and host to discuss the findings critically. NIMH contributed to this process by insisting that the researcher have professional contacts and acceptance in the host country before undertaking the project and by offering to copy and mail doctoral dissertations to host-country institutions and scholars.

5. Intimate knowledge of two or more cultures has enabled some researchers to become "culture brokers" between the peoples of the United States and those of the host country or others.

6. Knowledge derived from cross-cultural research has been applied directly to the promotion of international understanding and world peace. Some researchers returned to the host country and gave lectures and/or taught a semester or more as visiting professors, and some became involved in continuous exchange programs and cooperative research. A few examples may illustrate:

Dr. Lucy M. Cohen, Associate Professor of Anthropology at the Catholic University, Washington, D.C., did her dissertation field research as an NIMH Fellow in Colombia in 1965-1966. She studied Colombian women who have become innovators of culture change through their entrance into professional occupations previously unavailable to women in that country. She reported on her work in a book published in Spanish. Now, Dr. Cohen utilizes her training and foreign experience not only in teaching but in a variety of research and community action projects. Applying her experience to mental health problems in the District of Columbia, she has published the results of a study of patients at a community mental health center for the D.C. Department of Human Resources. Supported by the NIMH Center for the Study of Minority Problems, she is now studying the occupational adaptation of Spanish speakers in the United States; she is also involved in research on the ethnohistory of the Chinese in 19th century Central America and Panama. She serves as a consultant to the Pan American Health Organization.

Dr. Marida Hollos, a visiting professor at the University of Oslo, did her field research in Norway on an NIMH fellowship in 1970-1971. With the cooperation of the Norwegian anthropologist, Dr. Fredrik Barth, she investigated the relationship between social environment and cognitive development in Norwegian children. After having received her Ph.D. from the University of California, Berkeley, Dr. Hollos was invited back to teach at the University of Oslo for 2 years. This assignment has enabled her to conduct field research in Hungary during the summers on Piaget's formulations of cognitive development in a multicultural framework.

Dr. Gabriel DeCicco, supported by an NIMH fellowship in 1967-1968, studied the social structure of the Chatino of Mexico and how the individual and his beliefs and values are shaped by this structure. He earned a Ph.D. summa cum laude from the University of Madrid, an honor no other American has ever attained, not only for recording data on a fast-disappearing culture, but for enriching Mexican and Spanish understanding of the Chatino. His work was well received beyond the academic community and is now being published in both Spanish and English. He has been invited to direct an exchange program between United States and Spanish universities while continuing his research on comparative analysis and cognitive mapping of U.S.-mainstream, U.S.-Spanish, and Spanish-Spanish culture groups.

Dr. E. Richard Sorenson, Social Science Analyst with the National Institute of Neurological Diseases and Stroke, NIH, did his predoctoral field research in New Guinea on the impact of the cultural environment on children, especially on their cognitive development. His major contribution was in the field of methodology. He filmed sequences of social behavior in small, isolated cultural enclaves and produced motion pictures which made it possible to isolate and understand the influence of culture on the child's acquisition of verbal and nonverbal communication techniques and other elements of behavior. After having received his Ph.D. from Stanford University with the assistance of an NIMH fellowship in 1971, Dr. Sorenson returned to New Guinea, traveled to several Micronesian Islands, to Nepal, and to Mexico to record and analyze the behavior of people quite different from those of Western cultures. The increasing speed with which these remaining "exotic" cultures are disappearing has caught science off base. Programs and methods capable of coping with the recording of nonrecurring events have not been developed. Hence, Dr. Sorenson's work and method are of lasting value. Especially impressive is his filmed recording of facial components in the expression of basic emotion, aimed at determining the degree to which culture affects the elicitation and expression of emotion.

Dr. Keith Brown, Chairman of the Department of Anthropology at the University of Pittsburgh, did his research in Japan as an NIMH Fellow in 1961-1964. His interest in modernization and change resulted in a critical contribution to convergence theory, showing that the rural-urban transformation does not necessarily follow the same sequence and take the same direction in every culture. Different cultures react to adjustment problems differently; even the intergenerational gap can take different forms and does not necessarily develop a hostile atmosphere as in some Western societies. In cooperation with the Western Pennsylvania Psychiatric Institute, Dr. Brown is now doing research on family adaptation to urban U.S. environment and is training for community mental health services. One of his concerns is to study community reaction to "intermediate house" ("halfway house") care units and to delinquency in general in order to find culture-specific factors influencing the attitudes of the community. As a spinoff of his original field work in Japan, Dr. Brown has involved Japanese anthropologists in areas, such as the urban setting, in which they have previously not been interested. He has coauthored articles with Japanese scholars and published in both Japanese and American journals. He has returned to Japan several times and constitutes an important link between the two scientific communities.

The doctoral dissertation research program received no funds for new awards after 1973. The need for better understanding of man in the great variety of world cultures, however, has not diminished. In fact, it has become more urgent as man's problems become increasingly interrelated and assume global dimensions. Anthropologists, as architects of cross-cultural understanding, are essential to international mental health efforts. A support program like the one discussed above is needed to attract the very best students to psychiatric anthropology and to help foreign anthropologists to study mental health aspects of U.S. society. Global interdependence can best be served by global efforts.

PART IV

DRUG ABUSE

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INTERNATIONAL RESEARCH ON CANNABIS

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Cannabis, in its many forms, is one of the world's most widely spread drugs. Yet scientific knowledge of its long-term effects is minimal. Because long-term drug users in the United States almost always use more than one drug, it is necessary to study users in other countries to obtain data on the long-term effects.

Although cannabis is the most widely used drug in the world, after alcohol, the data presently available concerning the social, psychological, physiological, and cultural concomitants of cannabis use is deficient in many respects. This is particularly true of data concerning the effects of chronic, long-term cannabis use. In many countries the information which is available is often anecdotally based or impressionistic. The number of countries in which any systematic attempt has been made to examine cannabis use by modern epidemiological methods is a very small minority. In addition, there has been comparatively little effort, to date, expended on any systematic effort to collect and compare the data on the potency of the cannabis being used, the type of use (smoking or ingesting), and the frequency and duration of use.

The use of the plant for medical and religious purposes, and as a tonic to relieve fatigue, probably predates its use as an intoxicant. Even today, for many, if not most of the users in various parts of the world, the value of the drug lies primarily in its use in medical practice (including self-medication), in religious rites, and as a work adjunct, rather than as an intoxicant.

The Center for Studies of Narcotic and Drug Abuse the extramural research arm of the Division of Narcotic Addiction and Drug Abuse, has long had a special mandate to study all aspects of marihuana use. A part of this charge has to do with the stimulation, development, and eventual monitoring of studies of populations of chronic, long-term marihuana users. In the United States, it is difficult to locate such a population of users who have not also used a variety of other drugs. For this reason, the Center has turned to overseas populations.

A study of chronic cannabis users, to be of maximum value and relevance to the United States, should ideally include: (1) a sociological/anthropological study of the cannabis users, with full attention paid to all aspects of the cultural matrix in which such use takes place; (2) physiological and psychological measurements of an adequate sample of users; and (3) psychiatric assessment of an adequate sample of users.

The Center has, to date, supported two major overseas studies of chronic cannabis users, one in Greece and the other in Jamaica. In addition, it has sponsored feasibility studies in India, Morocco, Mexico, Panama, Brazil, Colombia, Costa Rica and South Africa. A feasibility study is a preliminary investigation to determine the suitability of a research site, the availability of a research population, the identification of an interdisciplinary team of researchers in the host country who are interested in the study of chronic cannabis use, and of course, most important of all, to secure a guarantee of cooperation from all the relevant government departments.

The Greek study is intended more as a pilot study of very heavy long-term hashish users, and has emphasized the medical aspects of use with some psychological testing but contains little information on the total cultural context in which use occurs. Although data collection on controls in the Greek study is not fully completed, it appears as though the differences between users and non-users will be minimal.

The Jamaica study, completed in March of 1972, comes closer to being a model study; that is, one in which the cultural, social, physiological, psychological, economic, legal, and psychiatric parameters of use are given equal weight. This study, carried out for the Center by the Research Institute for the Study of Man, in connection with the University of the West Indies, utilized an interdisciplinary team of researchers drawn from the United States and Jamaica. Anthropological investigators were stationed in six sites on the island for stays of approximately 6 months, and obtained extensive ethnographic data on better than 500 respondents, drawn from various occupational strata within the lower class. From these occupational groups, 30 sample and 30 control members were chosen to be admitted to the hospital for a week's stay, in which they underwent extensive physiological, psychological, and psychiatric testing.

The usage rate for cannabis (called ganja in Jamaica, since it was introduced by East Indian laborers) is high; it is estimated that 40 to 50% of adult males smoke ganja, and the potency of the material is high. In addition to the smoked cannabis, a substantial portion of the population uses ganja more or less as an all purpose drug–many babies are bathed with an infusion of ganja shortly after birth, they are given ganja in liquid form as one of their earliest foods, children are given ganja tea to give them strength and to ward off illnesses when they are attending school, and most of the population, of all ages, uses ganja as a medication for upper respiratory troubles, stomach and intestinal disorders, menstrual difficulties and a host of other illnesses. Most of the smokers utilize cannabis not so much for its so-called intoxicating qualities, but as a work adjunct; that is, they believe that it helps them, gives them greater energy to perform arduous, physically demanding tasks.

No substantial differences between the 30 sample and 30 control patients along any physiological, psychological, or psychiatric parameters could be found. In future studies, the size of the sample should be increased for testing of gross physiological and psychological performance, and then smaller samples could be employed for more intensive testing along certain parameters.

One of the most important findings from the Jamaica study certainly is that it calls our attention to the fact that it is necessary–in the study of cannabis or of any other drug for that matter–to study the uses to which the drug is put in a particular culture. It is the worst kind of ethnocentrism to look, in another country, with another type of population, for the same motives for drug use as we find in the United States. For example, one of the frequent charges leveled against chronic cannabis users in this country (users, it might be added, who have been identified primarily in school populations) is that they have developed an amotivational syndrome–that is, the drug deprives them of their capacity as well as their willingness to work. It is salutary to reflect on the fact that in Jamaica ganja is used for precisely the opposite reasons–that is to motivate men to work. One of the most frequent descriptions employed by the ganja users themselves is this: "It makes me feel to work."

The Center is also sponsoring, through the grant mechanism, a 2-year anthropological study of dagga (cannabis) in South Africa. Use of this drug by the native population was recorded by European travelers as far back as the sixteenth century. This study should prove of particular interest because the investigator will not only study native Zulu users, but also East Indian users who brought the drug with them when they came into Africa in the last century.

In August of 1973, the Center, in conjunction with the Center for the Study of Man of the Smithsonian Institution, will sponsor the first international cannabis conference, which will bring together ethnologists from about 30 countries to speak about use of the drug in their countries.

The difficulties of overseas research in general can hardly be overstated. When the proposed research is in the drug abuse field and is to be financed and supervised by an agency of the United States Government, the difficulties are compounded. The following list of problems is not intended to be exhaustive, merely indicative of those encountered:

1. Locating suitable populations accessible for study.

2. Locating adequately trained scientists from several disciplines to carry out the necessary work. (This includes not only scientists in the host country but American scientists as well.)

3. Obtaining the concurrent support of local and national officials (medical, legal, police) in the areas to be studied.

4. Obtaining approval for the proposed research from a national review committee. (This is necessary, for example, in India and Brazil.)

5. Insuring that the actual study is carried out with impeccably high standards (e.g. adequate selection of subjects, allowance for stratification, choice within strata, and so on, so that the sample will be representative of the overall population of cannabis users), suitably matched controls, and systematic and supervised drug and social history recording.

Choice of subjects and supervised control of interviewers may well pose one of the most difficult areas in the entire research proposed, since in several of the proposed studies we have reviewed, sampling experts are classified as simple statisticians and all interviewing is left to be done by social service workers.

6. Insuring that the simple logistics of the study—for example, seeing that sample and control subjects reach the hospital, make every scheduled appointment on time, that necessary supplies are ordered far enough in advance—are adequately handled.

7. Insuring that the study will not be disrupted because of local antagonism against any American-supported study. In the case of a drug study one not only has to contend with anti-American feeling in general, but also the fact that many countries feel that their emerging drug problems are due to American influence. In many

countries, anti-white and anti-American feeling may be indistinguishable.

8. There must be ironclad guarantees that data gathered in a study of this sort do not become available either to the local enforcement personnel or to U.S. enforcement personnel.

It is essential that participating research personnel (both United States and host country) adequately understand the social and cultural concomitants of drug use within the potential subject group. Since drug use is preeminently a lower-class phenomenon in the countries of long-term usage, it is entirely possible that the local medical, psychiatric and, in fact, university scientific personnel in general are very little informed about the difficulties in good sampling procedures of securing adequate interview data with supervision of interviewers, in order to secure a representative sampling population. It should be borne in mind that the gap between members of the lower classes (particularly peasant groups) and the upper-class scientific personnel is much greater in most of the countries where a research effort might be launched than it is in the United States.

In many countries the concern for the human and civil rights of research subjects is not nearly so advanced as it is in the United States and particular care must be taken to see that those rights are not violated. In preliminary proposals coming from some countries, for example, there never has been any provision made for payment to research subjects who come into the hospital even though the applicant organizations have been repeatedly told about this.

In addition to informed understanding of the cultural concomitants of cannabis use and users, any U.S. researchers must also be particularly sensitive to the feelings of the research personnel in the host country. This is probably one of the most difficult jobs of all because it not only requires that the U.S. researcher allow autonomy to his colleagues in the host country, but also play a research coordinating and, in a sense, supervisory role.

Our prior experience has indicated that the standards of accuracy, double-blind checking, blind reading of protocols and so on, which are standard research operating procedures in the United States, are not necessarily fully adhered to by the researchers in the host country. For this reason, it would certainly be desirable to have a U.S. investigator or investigators (depending on the stage and the nature of the particular research procedures) take up residence in the host country and the host institution for long periods of time during the study.

Studies of cannabis use in other countries would seem to be of particular relevance to the overall concerns of the National Institute of Mental Health, because of the many charges made that use of the drug impairs mental functioning to the point where psychotic episodes might occur. In addition, a study of cannabis users challenges us to deal with and learn from studies involving lower class populations, populations traditionally resistant to various kinds of physical and mental examinations.

Interdisciplinary studies, which the Institute has supported over the years in the United States, pose a particular problem, as well as a particular challenge in overseas studies. The rights of research patients, of particular concern to us in the United States, have often never even been considered by researchers in the host countries.

Cannabis use, in most countries of the world, seems to be primarily a phenomenon of young adolescent males. Given the emphasis of the Institute on the mental health of children and youths, a study of this age-linked phenomenon would seem to be of particular importance to the overall mission of the Institute.

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AN OVERVIEW OF INTERNATIONAL DRUG ABUSE PROGRAMS

JEAN PAUL SMITH, Ph.D.

NIMH has played a gradually increasing role in the international drug control system. This has involved collaboration with several agencies of the United Nations, other multilateral organizations, as well as cooperative efforts with specific countries. This article provides a brief overview of these activities.

The basic direction of the U.S. response to international aspects of drug abuse has been defined by the Cabinet Committee on International Narcotics Control (CCINC). Although the primary goal identified by the CCINC is the halting of illicit drugs from entry into the United States, they have recognized the need to reduce human consumption of drugs which, in part, creates the demand for them. In the report entitled, *The World Opium Survey, 1972*, the CCINC states: "A solution to this international problem can be realized only through the collective efforts . . . on both the supply and demand sides . . . by all countries with a present or potential involvement in production, refining, trafficking or consumption." Further, they say that "as in the United States . . . there must be a simultaneous attack by the international community on the demand side if the problem of the traffic in heroin is to be effectively suppressed."

Policies of the CCINC have been implemented by several means. The Department of State has guided the development of Country Action Plans for over 60 U.S. missions with a combined budget of approximately $50 million for overseas programs. The Agency for International Development, the Bureau of Narcotics and Dangerous Drugs, and the Bureau of Customs have taken the lead in curtailing illicit traffic and preventing production of synthetic and plant-derived drugs.

In the past, health and scientific programs of the Department of

Health, Education, and Welfare (DHEW) have been able to provide only limited support for consultation and ad hoc projects. Nevertheless, there has been criticism of the efforts of these meagerly funded programs to bring about greater impact of research, rehabilitation, and education on drug problems.

One point of view was stated in direct fashion by the National Commission on Marihuana and Drug Abuse (1973, page 235):

> The Commission feels that the Department of Health, Education, and Welfare has so far played too insignificant a role in the international drug control system. Too often, the Department's only contribution has been to comment on actions proposed by agencies directly participating, the Bureau of Narcotics and Dangerous Drugs, and recently, the Department of State.

Whether or not this view is entirely justified is not our concern here; we mention this view only to take note of the most recent commentary on the need for health initiatives in the international field.

WHO and the UN System

Recently increased emphasis on prevention and intervention in drug abuse in the NIMH has provided a foundation in the DHEW for a strong international program collaboration with international health organizations and the UN family. The World Health Organization and its six regional offices are the major health organizations concerned with drug dependence throughout the world. Through formal resolutions and technical reports, the WHO and its governing body, the World Health Assembly, have repeatedly emphasized the need for extensive and concentrated efforts on public health problems resulting from the self-administration of dependence-producing drugs. In the field of drug dependence over the last several years the WHO has convened many expert committees and scientific groups, whose members included NIMH scientists. Other efforts which bear directly on our programs include fellowships for foreign scientists in the field of dependence and consultative services to organizations in need of psychiatric or pharmacologic expertise in drug dependence. In September of 1972, the WHO held the First Interregional Seminar for National Programmes on Problems of Alcohol and Drug Dependence, a 3-week meeting in Sweden, Switzerland and Yugoslavia with an observer from the Institute's Division of Narcotic Addiction and Drug Abuse. The Pan American Health Organization and the NIMH are planning to cosponsor another seminar of this type, as a continuation in the Americas of this series of programs. Health and other leaders from countries in Europe, North and South America will participate in visits to a range of community rehabilitation programs in the United States, Canada, Mexico, and several other countries, thereby assisting these leaders in program planning, implementation, and evaluation of drug abuse in their own countries and in giving us the benefit of their experience at the same time.

Through the initiative of the WHO Regional Committee for the Western Pacific, their Regional Office (WPRO) and the NIMH are collaborating on a project to study drug problems in that region, which will result in the development of proposals for projects involving planning, manpower development, research, rehabilitation, training, and education. Through consultants familiar with the nature of drug problems in interested, participating countries, proposals for specific projects of high interest to scientists and government officials in these countries will be written for submission to funding agencies, including the UN Fund for Drug Abuse Control.

If the potential of this approach is realized, it may become a model for NIMH to assist other countries in their efforts at self-study and self-help. Thus, limited health resources here and abroad would be used to produce greater and more lasting impact on international drug problems.

At the 16th and 17th sessions of the General Conference of the UNESCO, resolutions were passed calling upon this body to develop and expand an interdisciplinary program in educational, cultural, and communications aspects of drug abuse. Scientists and educators from the White House Special Action Office for Drug Abuse Prevention, U.S. Office of Education and the NIMH have actively consulted with the Secretariat of the U.S. Commission to assist the U.S. Commission for UNESCO in defining its role, identifying possible projects and developing a strategy of operation for this program. The program of study and action (to be implemented over the 6-year period of 1971-77) includes plans for developing an annotated inventory of social science research on drug abuse and a system for continuous exchange of information.

As a party to the Single Convention on Narcotic Drugs of 1961, the United States has an obligation to participate in a broad range of activities defined by international treaty. Along with nearly 100 other countries, the United States has a commitment to give "special attention to the provision for facilities for medical treatment, care and rehabilitation of addicts" (Art. 38, para. 1). The experience of the Division's largest unit, the Narcotic Addict

Rehabilitation Branch, is valuable not only to domestic, non-Government treatment, but also to other countries with smaller drug problems than we face at home.

Since the Single Convention applies only to narcotics, cocaine and cannabis, the policy-making organ of the UN, the Commission on Narcotic Drugs (CND) convened the Plenipotentiary Conference in Vienna, January-February 1971, to consider a draft protocol on psychotropic substances—stimulants, depressants and hallucinogens. Two representatives of the NIMH, Dr. Sherman Kieffer and Dr. William Martin, provided psychiatric and clinical pharmacological expertise to the U.S. Delegation. The Convention on Psychotropic Substances, 1971, is now being considered by the U.S. Senate for ratification. Although this Convention departs from certain principles of our current domestic procedures for reliance on health and scientific judgments in resolving certain issues, it does contain a stronger statement on the need for prevention and treatment than the Single Convention. It states: "The parties shall take all practicable measures for the prevention of abuse of psychotropic substances and for the early identification, treatment, education, aftercare, rehabilitation, and social reintegration of the persons involved and *shall coordinate their efforts to these ends*" (Art. 20, para. 1), [italics mine].

At the most recent session of the CND in Geneva, a new emphasis on health was in evidence. Dr. Roger O. Egeberg, Special Assistant to the Secretary for Health Policy, was one of three senior U.S. representatives in the U.S. Delegation to the 25th Conference in January-February 1973. With active NIMH assistance, the DHEW prepared position papers on two formal agenda items and contingency papers on key topics such as marihuana and methadone maintenance. Presentations by Dr. Egeberg strengthened the position of the U.S. Delegation in this important policy-making forum of the UN.

At the same session, the U.S. Delegation took the lead in drafting a resolution, and obtaining co-sponsors for it, inviting the WHO to assist the CND by developing epidemiological information on the nature and extent of drug use and abuse in various regions of the world. The CND overwhelmingly approved the resolution, providing another indication that the time is ripe for health initiatives. Other developments at this Conference which bear on the mission of the NIMH in drug abuse were the adoption of U.S.-proposed guidelines by the CND for streamlining and simplifying data-gathering instruments on which the community of nations reports annually to the UN and an expansion of the range of topics included in the UN Bulletin on Narcotics to include social, scientific, epidemiological, and evaluative reports. Postconference assessments and followup have been conducted to provide continuity and identify new directions for the future.

Since most of the international drug abuse activities take place here at home, we regularly consult with officials from the Departments of State and Justice and the Special Action Office. Visitors from abroad frequently bring us their experience. Within the last year, individuals or delegations from Germany, Iceland, Burma, Italy, Mexico, New Zealand, Thailand, Argentina, and other countries have met with the staff of the International Activities Program (IAP) of the Division and with research, rehabilitation, training, and education experts from the Branch-level units of the Division. Health arms of international programs are furthered by the travel and contacts of Division, Institute, Department and SAODAP scientists, lawyers, and treatment program officials who have presented papers at several major meetings. Such activities give our programs visibility and increase our contacts overseas.

Multilateral and Bilateral Efforts

In international affairs, multilateral organizations are ordinarily established to serve economic and/or defense purposes of nations with common interests or regional ties. The United States is a member of several multilateral organizations but only one of these, the North Atlantic Treaty Organization, includes cooperation on treatment of drug problems as a definite goal. U.S. cooperation with NATO members under the aegis of its Committee on the Challenges of Modern Society is described in Chapter 30.

Although the United States is not a member of the Central Treaty Organization of the Middle East (CENTO), it is represented on some of its committees. Under the CENTO umbrella, the former Director of the Division of Narcotic Addiction and Drug Abuse, Dr. Sidney Cohen, assisted in organizing a seminar on drug abuse. With five countries participating, Iran hosted the seminar in April 1972. Papers presented include those by Dr. William E. Bunney, Jr., current Division Director, on the nature and extent of drug abuse in the United States; by the Deputy Director, Mr. Karst Besteman, on the prevention and treatment of narcotic addiction; and by Dr. Cohen on amphetamine and barbiturate dependence.

Colombo Plan countries are primarily South and Southeast Asian nations devoted to mutual cooperation for economic and social development. To facilitate State Department efforts to include in the 1972 meeting of the Colombo Plan countries, information on international patterns of drug use and research, treatment and rehabilitation, key articles on these topics were selected and an overview prepared. Dr. A. Hussain Tuma of the Division of Extramural Research Programs rewrote an article specifically for this forum entitled "A Controlled Comparative Study of the Treatment of Dependence on Opiates." Dr. Jean Paul Smith wrote a brief overview to these articles entitled "International Aspects of Social and Medical Control of Drug Abuse," which links in conceptual fashion social and medical prevention and intervention in drug abuse with the larger theme of the Colombo Plan countries' meeting—economic and social development.

Formal agreements have been made between the United States and other countries to provide cooperation in aiding mutual efforts to curb drug abuse. Since each has been in response to different initiatives and proceeds along different directions, we briefly describe them here. Other countries, such as Canada, actively cooperate with U.S. groups, exchanging information and periodically visiting each other's facilities.

Japan: In 1961 President Kennedy and Prime Minister Ikeda held discussions to further U.S.-Japan cooperation, one result of which was the formation of a Joint Committee on Scientific Cooperation, with the National Science Foundation as the U.S. implementing agency for all scientific areas. Planning for U.S.-Japan cooperation in drug abuse research began with preliminary meeting at the University of Michigan in 1964 where topics for joint study were identified. In 1965, the Committee on the Problems of Drug Dependence was designated as the coordinating body for the United States. Subsequently, meetings were held in Tokyo and then later in Honolulu to review progress in a wide variety of biomedical, clinical, and social aspects of drug abuse research, with two NIMH staff persons and one consultant leading the U.S. delegation.

Australia: In September 1971, the Director of the Division of Narcotic Addiction and Drug Abuse, Dr. Sidney Cohen, visited Australia to participate in an important drug abuse conference. A cooperative arrangement was worked out for the exchange of information and key personnel for the mutual benefit of both countries. Arrangements to continue and increase this cooperation are included in the International Activities Program of the Division.

Argentina: The Surgeon-General of the United States Public Health Service and the Acting Undersecretary of Public Health of Argentina have agreed that close cooperation in health and medical research in specific fields would mutually benefit both

Argentina and the United States. Insofar as it relates to drug abuse, the goals of this agreement are to exchange scientific and technical findings and publications, provide direct and prompt communication in areas of mutual interest, facilitate visits and assignments of scientific personnel, and cooperate on projects of mutual interest. Each country has designated an exchange coordinator for drug abuse and has agreed that cooperative activities should be closely coordinated with programs and facilities of the Pan American Health Organization and that PAHO will be kept fully informed.

Mexico: In their summit discussions, Presidents Echeverria and Nixon agreed on the importance of promoting cooperation between the United States and Mexico in scientific and health fields. Letters were exchanged between the Secretary of Foreign Relations of Mexico and the Secretary of State of the United States agreeing to an exchange of scientists and technicians, joint research, training projects and joint meetings. Under the coordinating group for scientific exchange, a broad program of cooperation in five areas (cancer, heart disease, pollution, alcoholism and drug abuse) was agreed to. Discussions were held in June 1972 at the American Psychiatric Association in Washington regarding cooperative ventures in drug abuse between the countries in research, training, education, and treatment. Both governments appointed Executive Agencies which together formed the Mexico-U.S. Drug Abuse Committee. Now heading up the Committee are Dr. Peter Bourne, Special Action Office for Drug Abuse Prevention, and Dr. Guido Belsasso, Director General, Center for Mexican Studies in Pharmacology, for Mexico. Dr. William E. Bunney and Mr. Karst Besteman represent the NIMH on this Committee.

After an exchange of visits at the policy level, Mexican scientists visited the Center for Studies of Narcotic and Drug Abuse in the Parklawn Building, the Addiction Research Center in Lexington, Kentucky, and then the Marihuana Project at the University of Mississippi. The Training and Education Section of the Division sponsored a special training cycle in Spanish for 20 health professionals from Mexico at the University of Miami in Florida. At the present time discussions are underway evaluating the need for collaborative research in Mexico on the health implications of chronic marihuana use.

The basic directions of U.S. policy on international aspects of drug abuse have been set by the Cabinet Committee for International Narcotic Control. Within this context, the role of the Department of Health, Education and Welfare clearly needs to be strengthened to achieve goals set by the Committee. In the UN family, collaboration with the WHO, both the Drug Dependence Unit and the Regional Offices, is increasing. UNESCO is beginning to develop projects to implement a long-range program. The Commission on Narcotic Drugs, the major policymaking body concerning drugs in the UN, was the focus of a new initiative by the United States. A senior health official, Dr. Roger O. Egeberg, was included for the first time in early 1973 as an alternate in the U.S. Delegation to the CND. Multilateral activities are found primarily in the NATO/CCMS project described elsewhere. Bilateral cooperation has been underway for over 10 years with Japan. Recently Australia, Argentina, and Mexico formally agreed to pursue mutual interests with the United States in the drug abuse field. Other countries, such as Canada, are actively cooperating with the United States in drug abuse programs.

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A COMPARATIVE STUDY OF THE TREATMENT OF NARCOTIC ADDICTION IN IRAN[1]

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NATHAN S. KLINE, M.D.

Understanding of the worldwide problem of drug abuse will not be achieved by the efforts of any one country alone. For this reason NIMH has become involved in research projects in other countries. The following is an example of one specific such research project on treatment approaches to narcotics addiction in Iran.

Drug abuse has become and remains a critical, frightening and thus far unmanageable health and social problem in a number of countries, including the United States of America (Cameron 1968; Eddy 1970; Eddy et al. 1965; Wikler 1965; WHO 1969; WHO 1970). It requires a broad perspective to understand this phenomenon and to identify factors involved in its emergence and to devise effective means for its prevention, treatment, and control. The meanings, attitudes, and values associated with drug abuse are not the same in all countries. Perhaps we can better understand the problem here in the United States by looking at the ways in which different cultures deal with it (Cameron 1969).

In this report, we will attempt to present first a brief statement of the general problems of narcotic drug abuse in Iran as background and then provide a short description of a recently initiated and piloted research project (Kline et al. 1966) on the treatment of such addiction. Currently the study is in the early phases of data collection.

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[1] The work of this particular project has been supported so far by the Iranian Ministry of Health and the NIMH, in collaboration with the International Committee Against Mental Illness. Drugs were prepared jointly and donated by the Schering and Eli Lilly Corporations, the former also contributing funds to the work. Financial support is anticipated from the NIMH Division of Narcotic Addiction and Drug Abuse and the United Nations Fund for Drug Abuse Control.

The major problem of drug abuse in Iran today concerns opium, shireh (a residue of smoked opium), and heroin. Dependence on these opiates is a major health, social, and economic problem and is recognized as such by concerned officials and the informed Persian public. Hashish, marihuana, the various barbiturates and amphetamines, and even LSD are abused to some degree, but the magnitude of their abuse is not considered significant.

As elsewhere, reliable statistics on the magnitude of drug abuse in Iran are not available. Impressionistic estimates, however, are plentiful but range less widely than in many other countries. The most conservative opinion of the number of individuals who are dependent on opium is about 200,000. Some observers informally suggest figures upwards to 600,000 and a few consider even this an underestimate of the actual prevalence of the problem. At present, no epidemiological studies in this area are available or planned. The number of heroin-dependent persons is equally an enigma. A figure of 10,000 persons is often given as an estimate of the total number of heroin addicts in the country. It is believed by some observers that this figure is a gross underestimate, but there is no way of indicating the margin of error. Some believe the figure to be between 20,000 and 50,000 persons. We do know, however, that the percentage of the 3,000 annual narcotic admissions to the Addict's Hospital in Tehran who are on heroin at the time of hospitalization has ranged between 33 to 38 percent in the past several years. We cannot extrapolate a figure from this relatively hard piece of data either, because we know that compared to opium, heroin is a costly drug and that many heroin addicts seek hospitalization to reduce the expense of maintaining their drug habit. They may also seek detoxification in the hope of recapturing the sensations and pleasures of their initial encounters with narcotics, which they no longer experience as long-term addicts. Estimates based on the total amounts of heroin used in the country are equally unsatisfactory, since those in turn are based on amounts of drugs seized by Government authorities, estimates of those escaping seizure and estimates of daily doses of heroin of unknown purity levels. Thus, the need for careful assessment of the magnitude of all drug abuse, particularly narcotics, is indeed an urgent one.

Registration of opium addicts began several months after new legislation in 1969 legalized the restricted cultivation and use of opium. Currently, there are about 120,000 registered addicts who receive their weekly opium quota from pharmacies in their local communities. It is estimated that this figure will about double as the Government's efforts to register addicts continues. These efforts have been generally more successful in larger urban communities than in remote rural regions of the country. Efforts to reach and register addicts throughout the country now take many forms including exerting greater administrative efforts by responsible staffs. If the cost of drugs on the black market is low enough, there is little inducement for an addict to register. Hence one plan now being tried is to provide opium at lower cost in rural areas. One of the main operational questions here is how to modify methods of registration that are useful in the city and tailor them to fit the requirements of sparsely populated areas that are at some distance from the nearest Government office, physician, or pharmacy.

The intensity and pervasiveness of the narcotic abuser's emotional and social problems are inescapable clinical facts (Glover 1932; Gregory 1958; Hill et al. 1960; Hunt and Odoroff 1962; Laskowitz 1965; Winick 1962) that were reinforced time and again as we interviewed hospitalized and nonhospitalized drug abusers in Tehran. Although similar in certain psychological factors and experiences of childhood and adolescence to the heroin user in the United States of America (Gerard and Kornetsky 1955; Kurland et al. 1968), the Iranian addicts differ in many other ways.

The heroin addict in the United States has been typified during the past several decades as a minority group member, of a lower socioeconomic class, with little educational or occupational competence. The average Iranian opium addict has at least an average education for the country, a record of gainful employment and the prerequisite ability to earn a living. The heroin addict is generally younger, more educated and better off economically, but otherwise he is similar to the opium addict in many other ways. Either one may come from a typically Moslem home (a majority religion) and from any segment of the full socioeconomic spectrum. He may be a ranking officer in the Army, a civil servant, a manager of a bank, a farmer, a food peddler, a taxi driver, an unskilled laborer, a 17-year-old school dropout, or a 7-year-old child whose mother is also an addict. Thus, typically opium addicts seem likely to come from any segment of the whole socioeconomic spectrum and do not represent a special ethnic, social, religious, or economic minority group. Moreover, typically the general attitude in the United States towards the addict has been that, as a person, he is "undesirable," "dangerous," antisocial, and hopelessly incompetent. This attitude is fortunately beginning to change due to an increasing understanding of the problem of drug abuse and its psychological and social concomitants. Because of a variety of historical and experiential factors, the opium and heroin chronic user is viewed rather differently in Iran. On most occasions he is seen as an unfortunate person with poor judgment who is in trouble and who needs help. The occasional user is not only viewed as a nonthreatening individual but perhaps as better off than the user of alcohol; for the use of alcohol is explicitly proscribed in the Koran, while the use of opium is not so prohibited. For many decades prior to 1955, opium use was virtually legally and socially acceptable, particularly when used in moderation. The period between 1955 and 1968 witnessed a most deliberate effort to outlaw the use of all narcotics except for scientific and medical purposes. Since 1969 its use has been sanctioned by law for users 60 years of age and older, and also for those suffering from chronic and serious conditions such as tuberculosis, cardiovascular diseases, etc. The impact of the new legislation, including the official stance in this area, on the Iranian society's attitudes and behaviors towards the use of opium is indeed an interesting and worthwhile question to study.

Conceptual Framework of the Study

Our working assumption is that understanding of the specific and perhaps unique sociocultural milieu in which drug abuse occurs is fundamental to any effective intervention. We further assume that, although drug abuse behavior in different individuals or in different societies may have some general similarities, no preventative (for society) or therapeutic (for the individual) intervention can be effective without understanding the unique conditions that are particularly relevant and specific to each instance.

Clearly, the association between a drug and its chronic user is not a random one. Individuals seek drugs and other experiences to satisfy a need such as curiosity, to seek pleasure, or to cope with loss, crisis or stress, that is, to escape an undesirable and uncomfortable state of affairs. The use of drugs is, therefore, an instrumental effort that seeks a solution, a goal: a more desirable state. When this behavior proves effective in achieving a desired end, or some approximation thereof, it is likely to occur again. This is particularly true of those drugs which inherently can lead to physical as well as psychological dependence. It is generally assumed that those who become chronically dependent on such a chemical "solution" of their psychosocial problems are individuals who have hopelessly given up other more effective means for coping with the demands of their life circumstances. Clearly, for some individuals the simple and early removal of drugs from their environment may break up the newly acquired equilibrium and, thus, provide a chance for seeking and readily finding more adaptive alternative modes of coping behavior. For others who are less robust and who have had a history of serious social and personal problems, the problem is clearly *not* that of an individual who happened to have a drug problem—that is, a person plus a drug, pure and simple. Where drug addiction is not an accident, then mere withdrawal of opiates from the environment is not likely to help much. The clear failure of the detoxification programs which have been based on this simplistic formulation of addiction is our best evidence for the inadequacy of this formulation as an explanatory concept. We are, therefore, searching for a more useful and necessarily more complex model which may include biological, psychological, and/or sociocultural variables as etiological factors in drug addiction.

According to such a model that presupposes an underlying psychopathology in drug addiction, a variety of emotional, social or behavioral problems can emerge or surface in the absence of narcotic or psychoactive drugs. It would be of considerable interest to discover the specific characteristics of individuals who are vulnerable to drug addiction as against those who may manifest other forms of maladaptive or deviant behavior in response to stress, as well as those also who are robust, resourceful, or resilient enough to sustain stress and cope effectively with it.

Moreover, our general belief is that drug addicts do not constitute a unified group and that any large population of addicts must therefore consist of several subgroups each with different constellations of etiological factors and consequently with different potential for recovery under different treatment conditions. In the present study we are considering mainly the treatment of one such subpopulation—those addicts who are thought to suffer from serious disturbances of affect (i.e., depression) and therefore have sought opiates as a "way out" of their undesirable state—as a form of self-medication. We assume that the treatment of some chronic opiate users will prove to be clearly beneficial if it includes such psychological, social and/or pharmacological methods of intervention as are thought to be effective in the present-day treatment of depressive illnesses. Consequently, our hunch is that patients who manifest high degrees of depression will respond better to our main experimental medication than those who show little or no signs of clinical depression. We will, therefore, utilize an antidepressant medication combined with a tranquilizer in the treatment of high and low depression groups for a period of 1 year following initial detoxification in the hospital and then on an outpatient basis. It is expected that once physical dependence on a narcotic drug is removed, the psychological need for such a drug can be obviated by means of an antidepressant drug in this particular subgroup. As symptoms of depression, both physical and psychological, gradually subside, abstinence from narcotic drugs should be easier to attain.

It should be evident that in carrying out this study in Iran, we hope to study patients who are not viewed as sociopaths, psychopaths or criminals by their families, friends, peers or their therapists. We are also hoping to be able to capitalize on the cohesiveness, size and structure of the Iranian family in providing therapeutic support for the patients. Although viewed differently, these patients may have in common with addicts in the U.S. certain personality characteristics and psychopathological symptoms of cross-cultural significance and thus may allow cross-generalization of the results of treatment studies in the two countries.

Finally, the project described in this section reflects several major needs that are central to the mission of NIMH in this area:

1. An acute need to identify, develop and utilize more effective methods for the treatment of dependence on narcotics than those available today. A prerequisite of this task is the execution of controlled comparative evaluations of various approaches to treatment—and the discovery of treatment(s)—specifically suitable to various subsamples of populations that are addicted to opiates. Despite the progress that has been made in psychopharmacology in recent years, it must be pointed out that we do not as yet have effective methods for the treatment of addiction and the maintenance of a narcotic-free individual who is able to function psychologically, socially, and occupationally well enough for a sufficiently long period of time to warrant the label of recovery or cure. Moreover, although there are some general clues to some of the pertinent patient- and social-milieu factors which may be involved in treatment, we have not yet been able to specify and validate such variables well enough to use them in the process of treatment (WHO 1969; WHO 1970);

2. The need to identify the variant psychological, social, and cultural determinants of the phenomenon of dependence on narcotics in different periods of time and in different cultural contexts in order to better understand the significant *invariant* parameters of drug abuse;

3. The critical importance of providing meaningful input into NIMH programs through international collaborative work with clinicians and investigators elsewhere in order to maximize the potential for developing and utilizing effective domestic programs;

4. The urgent and inescapable need for meaningful international cooperation on such significant scientific, health, and social issues as drug abuse, as a basis for better international understanding in the world community.

This study is a recent undertaking and is currently undergoing planning and pilot phases. During the past year and a half, we have completed many of the initial planning and feasibility requirements including the recruitment and training of staff, testing and development of various methods and procedures, and the beginning of pilot data collection.

The primary purpose of the research is to evaluate the relative efficacy, indications, and counterindications of two different pharmacological treatments in assisting opium- and heroin-dependent individuals achieve social recovery through the use of a placebo group and a "no treatment" (base rate) group as controls.

A secondary aim of the study is to identify certain social background and psychological characteristics of patients who respond well and those who do not respond to each of the treatment procedures used. Characterizing responders and nonresponders may assist us in arriving at some preliminary typology of addiction.

Patient Sample and Treatment

While the final number of patients who will be studied depends largely on the adequacy of the resources available to us, a minimum of 168 subjects will be carefully selected from consecutive admissions to the Vanak Hospital in Tehran. Initially, subjects are screened according to a specified procedure by hospital physicians in charge of the regular detoxification program and by project workers. All hospitalized opiate addicts who pass the screening and meet the criteria listed below will then be recommended to a special committee for admission to the project. This committee consists of three experienced staff members, including a psychiatrist, a social worker, and a nurse. Each nominee for admission to the project must meet the following criteria: he must

1. Be a male volunteer between 18 and 50 years of age.
2. Have no serious physical illness, mental deficiency, or acute or chronic psychotic reaction.
3. Have no record of serious crime other than for drug abuse or involvement in the illicit sales of narcotics.
4. Be able to read and write.

5. Have resided in Tehran or its immediate vicinity for at least 2 years and also intend to remain there at least another year.

6. Agree, with the consent of a close male relative, to stay in hospital beyond the detoxification period for an additional 3 weeks and to maintain his treatment for a full year from the date of his release from hospital.

7. Cooperate fully in monitoring his medication through laboratory urine tests and in providing the necessary information regarding his general health and social occupational adjustments.

8. Deposit 3,000 to 5,000 Rials ($50-$80) in a special hospital bank account as an assurance of his intent to continue treatment. These funds are refundable at the end of 1 year of treatment.

9. Be approved for admission to the project on the basis of an interview by the selection committee.

Following a patient's admission to the study, clinical and laboratory examinations and ratings will be made before special treatment is begun. Although elaborate examinations will not be feasible, minimum data that are essential for adequate evaluation of outcome will be gathered.

Following initial baseline evaluations, patients will be classified according to age and severity of depression into the following six categories:

Age:

(a) 18 to 28 years
(b) 29 to 39 years
(c) 40 to 50 years

Severity of depression (assessed through a 15-point scale that is based on patient's verbal report, behavior, and secondary symptoms of depression):

(a) high-score 7 or higher
(b) low-score below 7

This classification is used to equate patients in the different treatment groups with their average age and level of depression. Each treatment group will therefore contain patients representing all three age groups and the two levels of depression. Patients will be assigned to treatment according to a predetermined random method. All medications will be administered on a double-blind basis where neither the treating doctor nor the patient is informed of the nature of the particular drug used in each case. Briefly, the four treatment groups are as follows:

1. *A no-additional-treatment control group.* These patients will undergo the detoxification program routinely available to all

patients at the hospital. They will be followed up and evaluated for 1 year in fashion similar to that used for all other patients in the study. This group will provide base-rate information on abstinence and relapse and on personal, social, and occupational adjustments. These data will be used for comparison with results of the other three treatment groups.

2. *A placebo control group.* Patients in this group will receive an inert substance following the initial detoxification period and will be followed up for 1 year, as all other patients in the project.

3. *A Mutabon group.* These patients will be treated with an antidepressant (amitriptyline 25 mg) combined with a tranquilizer (perphenazine 2 mg) (Mutabon 25-2, also known as Etrafon and Triavil). As mentioned earlier, this treatment is based on the assumption that narcotic dependence in a substantial number of addicts is symptomatic of an underlying disturbance of affect. There is considerable clinical evidence from background histories of addicts of the presence of psychological, familial, and social problems. These problems seem to antedate the development of dependence on drugs just as the problems which characterize the alcoholic seem to antedate his development of alcoholism. We assume that once the patient is detoxified and his physical dependence on narotics is for the most part removed, his psychological need for the drug—or rather his need for the escape it provides—can be alleviated as the psychic pain and discomfort from which the patient is suffering is reduced by other more appropriate means. We further assume that the patient who is treated psychiatrically in this manner will eventually *learn* (Eddy 1970; Eddy et al. 1965) that he can face and cope with the demands of his life without the need to escape reality by means of narcotics. Medication will start at low levels and will be gradually increased and then maintained at a level that seems most appropriate to the requirement of each patient.

4. *A methadone maintenance group.* These patients will be maintained on methadone, a synthetic dependence-producing drug. The assumption advanced by some workers for this treatment is that morphine or heroin addicts are persons with a specific metabolic disorder or deficiency (Dole and Nyswander 1967) which can be "remedied" by means of a specific narcotic such as methadone (Dole and Nyswander 1965; Dole, Nyswander, and Kreck 1966; Nyswander 1967). We do not share this theoretical rationale and position for a variety of reasons, including the fact that it does not take into consideration the motivational factors which initially led to drug dependence. However, methadone maintenance can potentially serve as a stopgap, temporary treatment until comparatively more useful and

genuinely therapeutic methods are found. Our major interest in methadone maintenance at this point in the history of the treatment of drug dependence stems from the very critical need for well-controlled data on the relative efficacy of this method of treatment in *comparison* with other methods. The administration of methadone will begin at a point in time similar to that for Etrafon and placebo—about a week from initiation of detoxification treatment. This will enable us to control a number of variables and establish baseline information comparable to that available on patients in the other groups. Daily dose will begin at 10 to 20 mgs and be increased by 10 mgs every other day until a clinically satisfactory dose is reached within 2 to 3 weeks. The maintenance daily dose may range between 30 to 70 mgs, most likely at lower levels of this range.

Patients, regardless of their assigned treatment, will not receive other psycho-active drugs such as the major or minor tranquilizers and other antidepressant medication, except in cases of great clinical urgency. All medications will be administered *personally* by a responsible staff member (physician or nurse) and at specific times of the day. This is in order to establish a stable pattern of behavior in the use of prescribed medication. An attempt will be made to treat each patient as a unique individual with his idiosyncratic needs, strengths, and weaknesses, including his ability or inability to comply with the requirements of his treatment program. During the posthospitalization phase, medication will also be administered for 1 year to these patients by a project staff member in person, according to a predetermined timetable. Although treatment groups will differ with respect to their pharmacological treatment, group psychotherapy and social case work will be available to all while in hospital and afterwards for the duration of the study. The base-rate control group will be given no treatment beyond what is typically provided to hospital patients in general.

The process of patient assessment begins after formal admission to the project, but before the beginning of experimental treatment, and continues for a full year after first release from hospital. Several structured interview and clinical rating instruments will be utilized in gathering data. Briefly, they will seek information on and endeavor to assess and evaluate (1) background history of patient's physical and psychological status and adjustment; educational career; current work and marital status; medical and psychiatric history—type and history of drug use (including alcohol and smoking) and prior treatment; history of antisocial behavior including arrests and convictions; (2) present psychic and somatic complaints and symptoms of anxiety and depression;

(3) laboratory tests of urine for psychoactive and narcotic drugs; (4) repeated evaluation of social, occupational, and family adjustment during the 1 year following discharge from hospital; (5) data on all known treatment throughout the period of study.

Analysis of data will aim to (1) characterize the patient populations selected for study, those screened *in* but not selected, those who drop out, and those who remain in the study until its completion; (2) evaluate the comparative efficacy of the different approaches to treatment by means of multiple criteria of outcome—including degree of abstinence from narcotics, and social and occupational adjustment—and the change in psychiatric status, particularly with regard to anxiety and depression; (3) characterize socially and psychiatrically, both within and across treatment groups, those who respond and those who do not respond to treatment.

In view of our aim to follow up the course and outcome of treatment for 1 year on the one hand and the limitation of available staff and facilities on the other, the study will require about 3 years to complete. We hope that upon completion a controlled comparative study such as this can contribute to our understanding of the problem of narcotic addiction and more specifically help in the effort to provide more effective approaches to its treatment.

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THE DRUG REHABILITATION PROJECT OF THE NATO COMMITTEE ON CHALLENGES OF MODERN SOCIETY

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The rapidly spreading phenomenon of drug abuse has been a source of concern to many countries in the world in recent years. In an attempt to promote multilateral efforts in this field, NATO designated drug abuse as a concern of the Committee on the Challenges of Modern Society. The following describes the involvement of NIMH in this cooperative undertaking.

Background and Introduction

In the late 1960's, President Nixon proposed that the North Atlantic Treaty Organization (NATO) expand its military functions into peacetime endeavors. In November 1969, the Committee on the Challenges of Modern Society (CCMS) was established "to examine how to improve in every practical way the exchange of views and experience among the allied countries in the task of creating a better environment." Several broad areas were specified for cooperative work under the umbrella of environmental involvement. The Administration took special interest in the creation of a project on drug abuse rehabilitation as one of the Advanced Health Care Delivery Projects. The United States is the lead country and the Department of Health, Education, and Welfare through the National Institute of Mental Health is the lead U.S. agency for initiating and coordinating CCMS Drug Rehabilitation Projects. Drug rehabilitation items were first discussed in CCMS at a Brussels meeting in February 1972.

In the summer of 1972 a German study group visited the United States and published their observations of U.S. treatment methods with special emphasis on the potential use of methadone in Germany (Bundesministerium fur Jugend, Familie und Gesundheit 1972). The United States and Canada have increased bilateral efforts in the area of research. The United States continues to receive increasing numbers of requests from European professionals for more international collaborative work.

At the October 1972 meeting of the Committee on the Challenges of Modern Society, Mr. Elliott Richardson, then Secretary of the U.S. Department of Health, Education and Welfare, congratulated CCMS for the success of the Advanced Health Care Delivery Projects and suggested an expansion of the drug rehabilitation program. Dr. Bertram Brown, Director, NIMH, then proposed my visit to ministry of health officials in NATO capitals to identify project topics of genuine common interest and to assess the degree of interest among ministry of health officials in multilateral collaborative drug rehabilitation projects through CCMS.

During 2 weeks in January 1973, I met with Ministry of Health officials in London, Brussels, Paris, Bonn, and Rome. I received a warm welcome and strong interest in working together to develop multilateral drug rehabilitation programs. Officials openly discussed the potential seriousness of growing drug abuse problems in their own countries. They actively suggested needed projects. They generally expressed enthusiasm for an expansion of CCMS Drug Rehabilitation Projects. A comparison of our respective experiences with drug abuse problems provided us with a perspective from which we identified needed projects and criteria for defining projects.

Drug Abuse Problems in Western Europe and the United States

Drug abuse problems differ in the United States and Europe and even vary from country to country within Western Europe. The magnitude of the drug abuse problem as we know it in the United States has not been experienced by Europeans. Serious, widespread drug abuse has not always been the situation in this country. At one time abuse in the United States was limited to a few drugs and virtually confined to the largest urban minority-group ghettos. Not until the early 1960's did this nation experience the beginnings of drug abuse in the middle classes, which rapidly spread to epidemic proportions in the ensuing decade.

Undeniably, European countries have variously experienced serious drug abuse problems. Throughout most of Western Europe, cannabis, in the form of high potency hashish, has been used for some time by intellectual youth. The United Kingdom has had a long experience with heroin addiction virtually unknown in other European countries. The Scandinavians, unlike the rest of Europe, have experienced serious amphetamine abuse of virtual epidemic proportions. In the Netherlands (Amsterdam), radio broadcasts and the popular press reveal the strong demand for drugs which, with few legal restrictions and to the consternation of surrounding countries, are readily available there.

During the time that the United States was first experiencing an epidemic of drug abuse, many Europeans believed that their populations were resistant to the phenomenon of drug abuse because of the more traditional aspects of European society, their tighter family structure and less mobile populations. Since the late 1960's, however, Western European officials have been alarmed by the widespread experimentation with drugs among their young people. Europeans now recognize that there is an increasing amount of communication and population movement among European countries and between Europe and North America. A more positive attitude toward drug abuse is spreading throughout Europe, as people whose lifestyles include drug use are traveling over wider areas of both continents.

Although the detailed patterns of abuse in each country differ in some degree, the trend toward increasing experimentation and greater consumption of drugs is a fact in all countries. In any one country, drug-abusing visitors bring with them attitudes about drug use which may reinforce existing attitudes or introduce new values and patterns. Likewise, non-drug-abusing visitors may acquire drug abuse habits and attitudes when exposed to abusers in the countries they are visiting. For instance, visitors to Holland from countries which heavily suppress drug abuse may get exposed to easily obtainable drugs and permissive drug laws. Italian visitors returning home with a drug habit, or who contract a drug habit from exposure to drug abusers visiting their country, may find themselves unable to get treatment because facilities specifically for treating drug abusers have not been developed in Italy. In addition, the abuser who openly seeks treatment in Italy takes the risk of being imprisoned because Italian law does not distinguish between the illicit trafficker of drugs and the abuser himself. Even in Sweden, where amphetamines are outlawed for any purpose and where excellent treatment facilities are readily available, the visitor may be exposed to serious amphetamine abuse. Belgium, which so far has had a modest drug abuse problem, may be faced with more serious problems in the future. Belgian laws do not provide as severe punishments for producers and traffickers as other European countries. Illicit drug producers and traffickers may therefore move into Belgium and try to create a consumer black market there. Clearly one country's drug laws, policies and patterns of use affect every other country's drug abuse problem, and it is in the interest of every country to understand the nature of the drug abuse problem in other countries.

By this time most European officials recognize that despite national differences in drug abuse patterns, certain generalizations can be made: (1) no country is immune to the phenomenon of drug abuse; (2) in all Western European countries drug abuse is increasing; (3) visible drug abuse is only a small indication of the actual or real number of drug abusers; (4) because careful epidemiological estimates have not been made, no country knows the true extent of its own drug abuse problem; and (5) the increasing rates of drug abuse in Europe may be a prelude to an epidemic of drug abuse, as has been the case in the United States.

Having taken these factors into consideration each country has arrived at some similar procedures and objectives for approaching the problem: (1) make careful epidemiologic estimates of the drug abuse problem; (2) prevent the spread of drug abuse among nonusing populations; (3) treat those already afflicted so they will not be spreading their habits and attitudes; (4) alert and prepare professionals to identify and treat drug abuse in all its forms. A commitment has been made to these objectives. At the present time officials are trying to find the best ways to implement them. European countries have considered the value of some degree of international collaboration in solving their individual drug abuse problems. European health officials appreciate the particular advantage of the United States' and Canada's experience with drug abuse problems, these countries having had a longer experience with drug abuse than other countries. In recent years the United States has identified drug abuse as a major health problem and has had the opportunity to explore areas of research in some depth and to develop a variety of treatment modalities. Because of the relatively shorter experience with drug abuse problems in Continental Europe, physicians and professionals there have had less training and experience in the identification and treatment of abusers. There are also fewer types of treatment modalities and fewer facilities in use in European countries. European officials recognize the need for professionals in their countries to acquire technical expertise in planning and administering drug abuse programs. Critical evaluations of the experiences of others in areas of drug abuse identification, prevention, treatment, and education could be useful to them. They wisely foresee dangers in the wholesale adoption of other countries' drug abuse policies without attempting to fashion national programs to fit the special characteristics of their own drug abuse patterns. Policy planners must respect those attitudes and preserve those norms which are integral parts of their own cultures.

Despite national differences, the value of international collaboration is widely recognized. The desire for collaboration, however, must be balanced against certain domestic constraints that health officials in these countries must face. The degree of involvement of these small countries in any program, including international ones, is necessarily limited by their highly restrictive health, manpower, and budget resources. Also, because of the recent development of drug abuse as a serious health problem in Europe, European governments to date have given drug abuse problems a lower priority in their national health budgets than they have to other health problems. Many European governments have already contributed to a number of international collaborative drug abuse efforts. In fact there are a large number of international efforts. Those like WHO, UNESCO, and the Commission on Narcotic Drugs have certain limitations. The membership of these organizations is large, the scope of their efforts is broad, and the time necessary to accomplish their goals is usually long. There are specific intra-European efforts such as the Council of Europe and the Pompidou Ministers of Health Initiative, among others. Among these efforts membership is limited to European countries, but the mandate for work is usually broad in scope, again requiring a long time to produce results. No one among the European countries has had the broad and extensive experience with drug abuse which the United States and Canada have had. The absence of U.S. and Canadian membership deprives intra-European organizations of valuable sources of information and expertise.

NATO, through the CCMS, provides a unique opportunity for collaboration between North America and Western Europe. The vitality of CCMS lies in its present organizational flexibility. CCMS has avoided increasing the NATO bureaucracy and budget, has kept red tape at a minimum, and has instead relied on existing governmental resources. By maximizing governmental participation, CCMS has been responsive and sensitive to the needs and limitations of its members. CCMS has gained an increasingly favorable reputation among NATO countries in areas of environmental collaboration because of the highly effective manner in which it has utilized the international exchange of existing information, manpower, and resources. Since the CCMS vehicle for international collaboration has proven so valuable in other areas, it is reasonable to attempt to use the same mechanism for implementing certain kinds of drug projects. Ministers of health seem to appreciate the advantages of collaborating through CCMS and have offered their support for the CCMS type of approach.

Although the support of a country's Ministry of Health is essential for participation in a CCMS drug program, I suspect the ultimate decision for or against CCMS participation will be determined at a high political level. The political issues are sensitive ones. Among many European countries there are strong popular sentiments against involving a Western military organization in the drug abuse problem, which is viewed primarily as a youth culture problem. Particularly cautious are those countries with strong, vocal anti-military factions. The possible advantages to be derived from a NATO project must be weighed against the risks of antagonizing these groups.

Criteria for Defining CCMS Drug Projects

I have discussed some of the history and nature of drug abuse problems among the NATO countries because in preparing proposals for international collaboration, consideration must be given to each country's cultural characteristics and to its particular needs and limitations in the area of drug abuse. The following is a list of some criteria which should be considered in defining useful projects:

1. Projects should be defined to provide methodologic/technologic information rather than information about the youth culture.
2. Projects should be defined which meet genuine needs and common interests of the participating countries.
3. Projects should be designed with well-specified and limited objectives that can be carried out in a reasonable length of time.
4. An effort should be made to identify projects which maximize the exchange of resources and information already available to some of the participants but not easily accessible to others.
5. Project goals should include recommendations for work priorities, i.e., the order in which particular questions or problems should be taken up for further exploration.
6. Project results should suggest a range of options for carrying out useful tasks. These options should be broad enough to account for national differences in the nature and extent of drug abuse problems and national differences in values and customs. On the other hand, options should be specific enough to suggest useful approaches for solving particular problems.

Tentative CCMS Project Topics

1. *Epidemiology*
2. *The biochemical and neurophysiological bases of depen-*

dence and abstinence syndromes. How do drugs of abuse act upon the central nervous system and at the cellular level? Such information might suggest research for chemical treatments and provide information about the organization and function of the central nervous system.

3. *Exchange of information on narcotic antagonists and substitutes.* Questions such as the therapeutic indications for prescribing antagonists and substitutes and the criteria for evaluating their clinical success might be examined. Although there is not much of a narcotic abuse problem in Europe now, evidence is accruing to suggest an increasing narcotic problem and the threat of an even greater problem.

4. *Information on treatment of the acute phases of drug intoxication.* Because serious drug abuse is only a recently known problem in most European countries, physicians have often not been trained in methods of diagnosis, detoxification, treatments, etc. A project might be devised to educate key physicians in the diagnosis and treatment methods of drug abuse. These physicians could then in turn teach the same information to physicians in their countries of origin.

5. *The health and social consequences of acute and long-term marihuana use.* It is well known that there is widespread use of cannabis of high potency among European youth, especially those in schools and universities. Many governments are forced to enact legislation without having adequate scientific and medical information on which to base social legislation.

6. *Exchange of information and treatment personnel.*

From this list of tentative project topics, NIMH, using the criteria outlined above, will propose two projects: one on epidemiology and one on exchange of drug abuse information.

Every country visited stated a need for epidemiological information, and most considered it among their highest domestic drug abuse priorities. Basic epidemiologic information is essential, for example, in determining what, if any, treatment resources should be established to deal with existing and anticipated problems. Without such information it is impossible to measure the impact of treatment and prevention programs in reducing the level of drug abuse in the community.

The first project would be a working conference on international epidemiology to be held in Europe over a 5-day period. The purpose of the conference will be to identify the variety of epidemiological approaches which exist for estimating the incidence, prevalence, and trends of drug abuse, and to determine the relevance and applicability of each of these approaches in defining specific drug problems in participating countries. Experts from each country will prepare for presentation a written report. The report should present a descriptive overview of drug abuse problems and efforts to date in order to provide a perspective for a detailed examination of drug abuse epidemiology. The overview should summarize the best existing estimates of incidence and prevalence of various types of drug abuse according to age; sex; and social, cultural, economic, and religious characteristics of subpopulations; and changes in patterns over time. A general statement of presently recognized needs and priorities in maintaining and planning drug abuse efforts should be included, as well as the expected purpose of epidemiological findings in satisfying national needs and priorities. The written report should then focus on an identification of the various approaches that have been used to estimate numbers of abusers, and an identification of approaches that have been considered but not used. An ideal evaluation should include where possible an identification and critique of (a) the type of information yielded by the particular approach, and (b) the reliability, validity, cost/benefit, feasibility, and time required to administer and analyze the results of the approach. The reports should also include recommendations of which approaches are most appropriate for carrying forward drug abuse epidemiological studies in each country, given its needs and priorities, its available resources, the types of existing drug problems, the characteristics of the populations to be studied, and specific use to which the resultant epidemiologic information could be put.

The conference will provide a statement of the experience in drug abuse epidemiology of some of the most technologically developed nations in the world. As such, the conference should reflect the uses and limitations of present epidemiologic approaches and suggest new directions for improving the accuracy of epidemiological studies.

The written reports of this conference should be useful not only to participating countries, but to all countries faced with the task of defining the extent and nature of drug abuse problems. At the present time international organizations, in requesting epidemiological data from countries, have presumed that comparable data can be collected from all countries. This conference would provide an opportunity for inquiring into the feasibility of this assumption and provide some basic information for establishing techniques for collecting comparable data, should countries want to do so.

NIMH will propose a continuing project for the exchange of drug abuse information. The purpose of this project is to provide key persons and institutions in each country with the most recent and important medical/scientific drug abuse information available in other countries. Exchange of major publications on research, education, prevention and treatment; policy statements on drug abuse; and announcements of drug abuse meetings would give scientists and other professional persons in each country knowledge of the problems in other countries and of the efforts being made to deal with them. Such information is necessary should countries want to coordinate work and avoid unnecessary duplication of efforts. The United States, through NIMH, will formally request NATO countries to identify key health/scientific persons and institutes in the field of drug abuse in their countries. Each country will be requested to establish an international mailing list and send the kind of information mentioned to other countries.

In the light of the clear need for these projects, it is somewhat surprising that mechanisms for their implementation have not yet been developed. The CCMS provides a convenient and useful vehicle for initiating and suggesting new ways of collaborating on mutual problems. The implementation of the kinds of projects outlined above will support and enhance the work of existing international organizations. For example, the results of the proposed CCMS epidemiologic conference could convince many governments of the world to support more actively the larger WHO Research and Reporting Program on Epidemiology and Drug Dependence.

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PART V

ALCOHOL ABUSE

31

INTERNATIONAL STUDIES ON ALCOHOL ABUSE AND ALCOHOLISM

MORRIS E. CHAFETZ, M.D.

Alcohol in its many forms is ubiquitous in the world. Although problems of alcohol abuse are serious in our own country, in some other countries they are even more serious. Since its inception in 1970 the National Institute on Alcohol Abuse and Alcoholism has undertaken projects in other countries to increase our knowledge of the problems of alcohol abuse and to find better solutions to them. The five projects summarized in this chapter are representative of these efforts.

A recent conference held by the United Nations Educational, Scientific, and Cultural Organization in Paris concluded that alcohol remains the number one drug problem in both developed and developing nations. Alcohol constitutes by far the most serious and devastating drug problem in terms of the number of people it destroys, the number of families it shatters, and the enormous economic toll it exacts.

International cooperation offers us the invaluable opportunity of utilizing a variety of resources toward discussing common concerns and possible plans for alcoholism treatment and research. Through a network of mutual cooperation, we can pursue solutions to a common problem by sharing available resources and learning from one another's findings.

In the last few years, researchers in many countries have become increasingly concerned with obtaining direct measures of drinking and other drug practices and problems in the general population. To this end, a number of sample surveys of general populations have been undertaken. There is, of course, considerable worth to descriptive studies, showing national rates of various drinking phenomena defined with true comparability. What is really needed, however, in cross-cultural studies is research that will enable us to sort through the formidable number of possible explanations of the extant differences in drinking practices and problems in an endeavor to discover common motivations and causes. This would require studies whose design and populations would be suited to the testing of specific hypotheses.

Since its inception in May of 1970, the National Institute on Alcohol Abuse and Alcoholism has initiated a considerable number and variety of studies to stimulate and support multinational cooperation in undertaking basic and applied research concerning the causes of alcohol abuse and alcoholism and the most effective method of combating them. These range from cross-cultural studies of drinking practices and epidemiological investigations to evaluations of the effectiveness of different treatment modalities and delivery systems for alcoholism. Five such programs have been selected as representative studies to be described in greater detail. They are but a small part of the many programs currently in process.

Heredity and Environment in the Development of Alcoholism (Denmark)

A number of studies have shown that alcoholism is a familial disorder. However, due to the fact that individuals are usually raised by the same persons who provide their genes, family studies have done little to clear up the issue of "nature" vs. "nurture" in the development of alcoholism. One approach to separating "nature" from "nurture" is to study individuals separated from their biological relatives soon after birth and raised by nonrelative foster parents. However, there are many problems posed by adoption studies. It is often difficult to obtain access to adoption agencies, and few agencies have information about the drinking habits of parents whose children are placed for adoption. The mobility of families also creates problems for such studies.

For these reasons a collaborative adoption study has been undertaken by Donald W. Goodwin, M.D. and his colleagues, Washington University, St. Louis, Missouri, in Denmark where these difficulties are not as great. The purpose of the study is to determine whether men raised apart from their biological parents were more likely to have drinking problems or other psychiatric difficulties if one of their biological parents was an alcoholic person than if there was no recorded alcoholism among their biological parents.

An extensive screening of a group of 5,483 adoptees born in Denmark between 1924 and 1947 was conducted to identify a group of persons who were adopted during the first 6 weeks of life by nonrelatives and who had no known contact with their biological parents, at least one of whom had received a hospital diagnosis of chronic alcoholism. A group of 55 proband adoptees were located and administered an extensive interview by a psychiatrist. The adoptees are now adults and have had sufficient time to develop alcoholism. A group of 78 control adoptees, matched with the probands by age, sex, and time of adoption was also located and interviewed. Only men were studied because of the known higher prevalence of alcoholism among men.

The incidence of alcohol problems—social, legal, vocational, and medical—was found to be generally higher in the proband group than in the control group ($p < .02$). The two groups did not differ in other forms of psychopathology, such as depression or character disorders. Children of alcoholic persons did, however, have three times the divorce rate of the control group.

The adoptive parents of the proband and control subjects were of similar socioeconomic class and had similar rates of alcoholism and other psychiatric disorders. These findings suggest that genetic factors may play a role in the development of alcohol problems and that the predisposition to alcoholism is relatively specific, at least in men.

As a second part of this study, the biological siblings of the probands were also located and interviewed by a psychiatrist. These siblings (many of them half-siblings) were all raised by their biological parents and thus have had considerable exposure to the alcoholic biological parent. To be certain that the interviews would be conducted blindly, a matched group of nonadoptees were also interviewed to determine, among other things, the prevalence rate of various psychiatric disorders in individuals raised by "normal" biological parents.

By comparing rates of alcoholism and other psychopathology in children raised by alcoholic biological parents with siblings raised by nonalcoholic foster parents, it was hoped that the respective roles of environment and genetic factors in the development of alcohol-related problems and other psychopathology could be further elucidated. This study is still in the data analysis stage and no findings are available at the time of this writing.

In a related study conducted in the United States, half-siblings of hospitalized alcoholics were studied to determine whether they had alcohol problems and to gather information about their biological parents and parents-of-upbringing. It was found that the strongest predictor of alcoholism among the half-siblings of the probands was having a biological father who was himself alcoholic. Whether the parent of upbringing was alcoholic was irrelevant in predicting alcoholism in the half-sibling. In other words, the incidence of alcoholism in half-siblings was not influenced by living with an alcoholic parent, but was influenced by having a biological parent who was alcoholic. (A paper by Schuckit, Goodwin, and Winokur presenting the results of this study won the Hofheimer Prize awarded by the American Psychiatric Association in 1972 for the year's best research paper.)

It is clear that alcoholism runs in families. In addition, there is now evidence suggesting that the transmission may be at least partly genetic in nature. The specificity of the transmission, however, remains unknown, and the importance of environmental variables is still obscure. Studies of the type described here, by more clearly delineating genetic and environmental influences, will stimulate further efforts to identify the biochemical, psychological, and sociological factors producing alcohol problems. The opportunity to conduct such studies, utilizing the Danish adoptive cohort, is unique and unprecedented.

The Role of Alcoholic Beverages on the Etiology of Certain Cancers in Man (France)

During the last three decades considerable data has demonstrated that in Western industrialized states an association exists between heavy alcohol ingestion and certain types of cancer, notably cancer of the esophagus and of the liver. However, in certain countries there appears to be no etiological relationship between alcohol consumption and cancer, nor does mild or moderate drinking appear to show a significant correlation. Furthermore, although ethanol per se has been shown to be toxic to the liver, it has not unequivocally produced esophageal or liver tumors in the experimental animal.

It has been suggested by certain researchers that the role of alcoholic beverages in carcinogenesis may be dependent either on the solvent effect of ethanol or the presence of carcinogenic compounds or contaminants within the beverage itself. However, systematic studies on the carcinogenic activity of different beverages remain to be carried out. Isolated reports on the presence of carcinogens in certain beverages have often not been confirmed by further studies.

In an effort to ascertain the association between alcohol consumption and cancers of the esophagus and liver, Dr. John Higginson, International Agency for Research on Cancer, Lyon, France, is coordinating a three-part study. In the first phase, overall alcohol consumption is being compared to the incidence of various types of cancer in different countries. Second, case control studies are being carried out to examine the effects of alcoholic beverages over a range of different personal and dietary backgrounds, comparing patients with esophageal cancer to controls. Third, specific epidemiological studies on alcoholism are being carried out in collaboration with specified cancer registries.

The International Agency for Research on Cancer (IARC) has information available from 60 cancer registries in a variety of communities concerning cancer morbidity and mortality. In a number of these countries, data are also available on the overall consumption of alcohol per capita, the types of beverages consumed, and the distribution of alcohol consumption within the populations for which data on per capita consumption is available. Both sets of data are now being analyzed in order to relate overall alcohol consumption to the incidence of several types of cancer at different sites. It may also be possible to determine temporal changes in cancer incidence relative to alcohol consumption.

While such a study may produce suggestive results, associations found do not necessarily imply a causal relationship. However, this study can produce hypotheses which will then be tested by epidemiological techniques. Final analysis will depend on a more accurate description on the presence of environmental carcinogens and associated data on the nature of alcohol and drinking habits.

IARC has been conducting a series of case control studies which reveal that areas such as Jamaica, Thailand, Singapore, Brittany, and Iran, show contrasting levels of esophageal cancer and considerable variations in male-female ratios, for example, 20:1 in Brittany as compared to 0:6 in Northern Iran. As it is likely that the role of alcohol is different in each area and is probably minimal in Iran, the studies are examining the effects of alcoholic beverages over a range of different personal and dietary backgrounds. In each region, questions are posed both to patients with cancer of the esophagus and to controls on the use and nature of alcoholic beverages as well as on smoking, dietary and other personal habits, and exposures. The sample includes (a) controls taken from a specific community in the study area or from samples of the total population in the study area, (b) controls taken from houses close to the place of residence of the case, (c) cases of oral and pharyngeal cancer, (d) controls from the same hospital ward and from orthopedic wards, as cases, and (e) cases of cirrhosis and episodes of delirium tremens. In Jamaica, Thailand, and Singapore interviews have been completed and the results await analysis.

Excellent cancer registries have been in existence for several years in Norway, Finland, and Sweden. Some interesting regional differences have been identified in these Scandinavian countries. For example, Finland shows twice the incidence of esophageal cancer as compared to Norway, while, in contrast, the incidence of liver cancer in Sweden is high and appears to be increasing. A cancer registry also exists in the United Kingdom in the Birmingham area, where liver cancer appears to be increasing.

A meeting on Potential Scandinavian Studies on the Carcinogenic Role of Alcoholic Beverages, held in November 1972, produced the following conclusion: The association between esophageal cancer and excessive drinking of alcoholic beverages in Norway was relatively strong, not apparent in Finland, and doubtful in Sweden.

The purpose of the third part of this study, therefore, is to determine the proportion of individuals who show evidence of alcoholism, as identified from hospitalization records, arrest records, and other available sources, who are also included in cancer registries in Norway, Sweden, Finland, and the Birmingham area of the United Kingdom. Specific factors to be considered include (a) incidence of esophageal and liver cancers in the general population and in alcoholic persons; (b) regional differences among and within countries in the incidence of esophageal and liver cancers and of alcoholism; (c) changes that have occurred in incidence rates in recent years and how they coincide with modifications in alcohol consumption; (d) the availability of any case history studies within a country on the particular types of cancer being investigated and alcoholism; and (e) the effect of longevity (in patients with cirrhosis) as a cause of the increased frequency of liver cancer in certain countries, i.e., how does longevity affect the percentage of cirrhotic livers which *now* show neoplasia as compared with *earlier* studies?

In addition, a clinical review of alcoholic persons and pertinent aspects of their disease, with special emphasis on determining the frequency of liver cirrhosis, will be performed in a selected group of hospitals. Patient files at the Royal Free Hospital, London, will be surveyed to determine (a) the incidence of different histological types of primary and metastatic liver cancer among patients with and without chronic liver disease; (b) the relationship between a history of alcoholism and liver cancer, and between Australia antigen positivity and cancer; and (c) the duration of symptoms or signs referable to liver disease in alcoholic patients with and without liver cancer, and their survival.

Epidemiology of Alcoholism in Latin America (Latin America)

Alcoholism is a disease which is shared by every country in the Western Hemisphere. Alcohol abuse is particularly devastating in

Central and South America. Its association with malnutrition and with infectious diseases is very common. Indirect indicators such as mortality rates for cirrhosis of the liver, suicides, homicides, and traffic accidents reflect the seriousness of the problem in Latin America. Particularly striking is the mortality from cirrhosis of the liver in Chile and Mexico, where the age-adjusted rates rank among the highest in the world.

There is also evidence of the rising frequency of use of depressants and stimulants of the central nervous system as well as of hallucinogenic substances in combination with, and frequently associated with, alcohol use. The exact extent of the problem is unknown. A project undertaken by Charles L. Williams, Pan American Health Organization, has three general objectives: (1) Research on drinking patterns in several Latin American cultures; (2) Prevention of alcohol-related traffic accidents; and (3) Development of centers for the study of alcoholism in Latin America and of treatment demonstration units in several cities.

Data on the amount of alcoholic beverages legally produced and imported are available in practically all Latin American countries. However, due to differences in the quality of the beverages, their alcohol content, and above all, the way people drink, comparisons between production and even consumption have little significance.

The impression exists that alcoholism is a serious problem in all Latin American countries, especially those along the Pacific Coast. Extensive epidemiological studies on alcoholism have been made in Chile, where a prevalence rate of 5% has been consistently found in the population over 15 years of age. Estimates made in Peru and some Central American countries suggest that the problem there is similar, but these estimates must be confirmed.

The Inter-American Investigation of Mortality, completed by the Pan American Health Organization in 10 Latin American cities and 2 control cities, provided a comprehensive account of the causes of mortality of adults in those populations. It was shown that alcoholism in some form was responsible for 4.9% of all deaths studied. In the same investigation, it was found that 80.4% of the deaths from cirrhosis of the liver were associated with alcoholism.

The impression gained from the scanty information available is that in urban Latin America alcoholism and heavy drinking are much more common among men than among women. It is thought that in rural populations, especially among indigenous people, the ratio between the sexes may not be so marked. There are also indications that alcoholism among children is not uncommon in rural settings.

The objectives of the current program are (a) to obtain more precise data on the prevalence of alcoholism in Latin America in both urban and rural populations; (b) to study attitudes toward drinking in several rural and urban communities; and (c) to evaluate patterns of drinking in several subcultures, and their relationship to other characteristics. A preparatory meeting to discuss strategies regarding a multinational epidemiological study on alcoholism was held in Rio de Janeiro, Brazil, in March 1973. Specialists from Argentina, Brazil, Canada, Colombia, Costa Rica, Dominican Republic, Mexico and Peru participated and agreed on several lines of action. Information is being obtained on type and amount of beverage consumed, place and time of drinking, family structure, work situation, diet, geographic isolation, migration patterns, and other relevant factors. Data are being collected through home surveys, interviews, and questionnaires, from both drinkers and nondrinkers, in both urban and rural populations.

Although specific data are difficult to obtain, it seems probable that the number of deaths per 100 million vehicle miles in most Latin American countries is several times the level in the United States and Canada. It is also quite clear that, as in North America, alcoholism is a very important contributing factor in up to 50% of the fatal accidents. Motor vehicle accidents are among the main causes of mortality in many countries in Latin America, and in most of them the trend is toward both an absolute and a relative increase in the number of traffic accidents. The death rates are particularly high in young males. In 11 of 18 countries surveyed, traffic accidents accounted for more than 10% of general mortality in males in one or more age groups. Mortality rates in the group of males 15-25 years of age accounted for between 15% to 33% of the mortality in that group in six Latin American countries.

Surveys on the frequency of alcoholism have been made in several Latin American countries and high prevalence rates have been found in the age groups over 15 years of age (5% to 15%, varying with social class). In separate surveys in several different countries, an association has been found between alcoholic intoxication and the frequency of traffic accidents, with rates ranging from 2% to 10%. The real statistics of the problem are likely much higher if one takes into account the deficiencies of the registration systems and reporting methods used. The extent of the problem is not known with certainty, and more systematic research is needed.

The objectives of the current program are (a) to ascertain more precisely the influence of ingestion of alcohol on the production of traffic accidents, determining also the role of other important factors; (b) to disseminate information to public health administrators and the general public on facts related to alcoholism and traffic accidents; and (c) to promote the adoption of specific legal, fiscal, and educational measures, with attention to programs of emergency medical care and rehabilitation as well as prevention.

To accomplish these goals, a clearinghouse has been created for disseminating information on alcoholism and alcohol abuse in relation to traffic accidents, and advisory services have been developed for controlling accidents in the countries concerned. Periodic international seminars are held, with administrators, educators, traffic officials, and others participating, to discuss problems of common interest and to exchange information on the most recent advances; to outline policies and propose programs; and to promote field research through small grants to specialized centers in places where the problems are evident. Three such multidisciplinary seminars, one in Middle America, one in South America, and one in the Caribbean were held in fiscal year 1973 on problems of alcoholism and traffic accidents.

In most Latin American countries, alcoholism has been recognized as a serious health problem, but in very few have concrete corrective actions been taken. There are only scattered services available for the treatment of alcoholic persons and practically none in the areas of prevention and rehabilitation. In several countries, the only service offered is the sobering up of inebriated persons in the state hospitals. There is an urgent need to establish treatment and rehabilitation units which can also serve as local training and demonstration centers.

There is also a recognized need for the establishment of investigative programs for the study of alcoholism in a number of countries. In this connection, research programs in Chile have produced valuable research findings in the fields of epidemiology, pharmacology, and the genetics of alcoholism. Other Latin American countries have great potentialities for contributing to the study of alcoholism. The Pan American Health Organization has assisted by providing some consultants, and wishes to establish a more permanent program of consultation and to award fellowships for studies abroad.

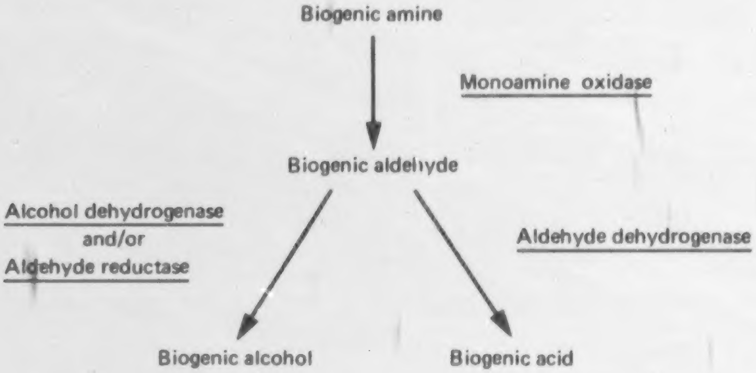
The objectives of this part of the project are (a) to assist two national governments to set up key centers for the study of alcohol and alcoholism; and (b) to assist local authorities in designing programs for treatment, prevention, and rehabilitation. A Center for the Study of Alcohol and Alcoholism has already been established in Costa Rica, with another center to be set up next year at a South American location. The centers will provide consultation in alcoholism and relevant disorders, award two research fellowships each year, and provide laboratory equipment and supplies.

The project is seen as indispensable for initiating transnational cooperation in an area suffering from a widespread and serious alcoholism problem. The project has already conducted a 3-week program to train key persons from the Latin American nations. Training consisted of lectures on all aspects of alcohol abuse and alcoholism, including its causes, medical complications, epidemiology, treatment, and rehabilitation. Field visits were made to a number of treatment facilities and other relevant installations. Trainees, including social workers, physicians, and psychiatric personnel are expected to return to their respective countries and become catalysts in initiating and developing alcoholism programs.

Alcohol and Aldehyde Metabolizing Dehydrogenates (Switzerland)

In recent years research on biochemical aspects of alcoholism has concentrated increasingly on determining the action of ethanol on the central nervous system, particularly at the molecular level. New understanding of the role of such compounds as dopamine, noradrenalin, serotonin, tyramine and tryptamine (collectively known as biogenic amines) in altering the functions and interactions of nerve cells is permitting the pursuit of studies on the possible impact of alcohol on the metabolism of these compounds (Wallgren and Barry 1970; Kissin and Begleiter 1971; Israel and Mardones 1971). Studies by Dr. Jean P. von Wartburg, professor of biochemistry, University of Berne, Switzerland, of the enzymes involved in the metabolism of ethanol and biogenic amines are representative of investigations currently underway in this area.

The breakdown of biogenic amines follows the same biochemical course in brain and liver. The following scheme shows the general features and responsible enzymes:



However, from liver to brain the relative activity of the individual enzymes seems to be different. Recent evidence suggests that the same groups of enzymes are involved in the metabolism of alcohol and a closely related substance, acetaldehyde, and of biogenic aldehydes.

Several hypotheses have been advanced to explain the development of addiction to ethanol. They are based on three main suppositions:

1. Ethanol and/or acetaldehyde interferes with the normal breakdown of the biogenic amines to biogenic acids by interfering with the necessary enzymes. In this situation, the biogenic alcohols become the primary products of biogenic amine metabolism. The presence of excessive amounts of biogenic alcohols may then induce the physiological condition of addiction.
2. Chemical combinations of biogenic amines and biogenic aldehydes or acetaldehyde formed from the metabolism of ethanol lead to alterations in the functions of the nervous system and, thus, possibly to addiction.
3. Binding of biogenic aldehydes to neuronal membrane proteins leads to alterations in the neurons.

The proof of these theories requires an increase in our knowledge of the functions of the several enzymes involved in the metabolism of biogenic aldehydes as well as a clearer understanding of the extent to which certain of these enzymes are localized in specific types of nerve cells.

Dr. von Wartburg's research efforts consist of three separate, although related studies. First, he is investigating the effect of certain drugs on purified samples of the enzyme, liver alcohol dehydrogenase. In his earlier work, von Wartburg (Kissin and Begleiter 1971; Schenker, Teeple, and von Wartburg 1971) has shown that in addition to exhibiting at least seven different varieties in humans, this enzyme may exist occasionally in an atypical variant in some individuals. The atypical enzyme is more prevalent in Oriental than in other peoples (Fukui and Wakasugi 1972; Ogata and Mizohata 1972) and it may provide its possessor with a unique biochemical reaction to alcohol. The drug studies with normal and atypical liver alcohol dehydrogenase are planned to lead to the development of a method for easy detection of the atypical enzyme in humans. In parallel studies, Dr. von Wartburg is investigating the influence the type of alcohol dehydrogenase (normal or atypical) has on the production of biogenic alcohols during acute intoxication.

Second, studies of aldehyde dehydrogenase and aldehyde reductase are underway with the aim of determining the ability of these enzymes to convert various biogenic aldehydes to biogenic acids and biogenic alcohols, respectively. Four multiple molecular forms of human brain aldehyde reductase have been isolated (Ris and von Wartburg 1972). The classical inhibition of alcohol and aldehyde dehydrogenase is inactive, but psychoactive drugs such as barbiturates, hydantoins, succimides, and benzodiazepines are inhibitory for some forms. These studies are of fundamental importance since these enzymes probably serve very general functions in the body acting on numerous types of aldehydes, biogenic and otherwise, with varying degrees of facility. As the functions of these two enzymes become cleared, Dr. von Wartburg plans to determine the extent to which the reductase is inhibited by the biogenic acids (produced from biogenic aldehydes by aldehyde dehydrogenase).

Finally, since certain nerve cells are known to respond preferentially to one or another of the biogenic amines (Kroon & Veldstra 1972), Dr. von Wartburg is investigating the possibility that various cell types contain dehydrogenases and reductases of differing specificities toward ethanol and the biogenic aldehydes.

Prevention of Adverse Metabolic Effects of Alcohol (Sweden)

Alcohol dehydrogenase is an enzyme of central importance in the metabolism of alcohol in man. A Nobel laureate, Dr. Hugo T. Theorell, professor of biochemistry, Karolinska Institutet, Stockholm, Sweden, has been among the world leaders in uncovering the details of the biological role played by alcohol dehydrogenase (Theorell, Yonetani, and Sjoberg 1969). Since the isolation of this enzyme in pure form by his collaborators Bonnichsen and Wassin (1948), Dr. Theorell's research group has determined in detail the mechanism of the conversion of alcohols to aldehydes which is facilitated by alcohol dehydrogenase (Theorell and Chance 1951), the primary structure of the enzyme (Jörnvall 1972) and the action of a variety of substances which counteract the disturbances of alcohol on normal metabolism (Theorell, Yonetani, and Sjöberg 1969).

In studies currently supported by the NIAAA, Dr. Theorell is extending his investigations of alcohol dehydrogenase in both basic and applied directions. By the technique of X-ray crystallography, the three dimensional structure of the enzyme is being determined. This work, when completed, will provide a clear picture of the way in which the enzyme interacts with both ethanol and other alcohols and with inhibitory compounds.

Work on the metabolic functions of alcohol dehydrogenase is also continuing. Long-term consumption of alcohol by man or animals leads to fundamental changes in metabolic patterns in the body. For example, the conversion of ethanol to acetaldehyde by alcohol dehydrogenase interferes with the metabolism of carbohydrates, fats, and certain steroids. The accumulation of fat compounds in the livers of alcoholics which leads to liver damage is believed to be one result of this metabolic derangement caused by alcohol (Blomstrand & Forsell 1971). Dr. Theorell's investigations can be expected to increase our understanding of the causes and mechanism of alcohol-associated liver disease.

Finally, studies are continuing on the ability of a drug known as 4-methyl-pyrazole to partially block the destruction of ethanol by alcohol dehydrogenase. This drug appears to compete with ethanol for space on the enzyme surface. Preliminary studies in rats have indicated that 4-methyl-pyrazole reduces the degree to which alcohol consumption induces the metabolic changes leading to the development of fatty liver (Blomstrand & Theorell 1970). Evidence is also available showing that the drug is not toxic to man.

While a drug which apparently slows down the metabolism of alcohol may seem initially to be of limited value in alcoholism therapy, it should be remembered that alcoholics attempt to support their blood alcohol content more or less continuously. In Dr. Theorell's laboratory, alcoholic volunteers under treatment with 4-methyl-pyrazole reported that the drug seemed to increase the effects of a given dosage of alcohol. Thus, therapeutic use of the drug might reduce the alcoholic's consumption and prolong the "drying out" period while reducing some of the deleterious effects of alcohol on his metabolism.

The work currently being conducted by Dr. Theorell's research group provides an excellent illustration of the gradual transfer of knowledge gained in basic biochemical investigations to the armamentarium of modern medicine. The findings of this study may link one of the biogenic amines more directly to the physiological phenomenon of alcohol addiction.

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CONCLUSION

FUTURE INTERNATIONAL COLLABORATION

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The foregoing chapters have illustrated the broad and varied nature of international collaboration in mental health programs supported by NIMH. The range includes such diverse projects as studying cannabis smoking in Jamaica, the symptoms of schizophrenia in Colombia, the village hospital systems in Africa, the biochemistry of the brain in Sweden, alcoholism in Yugoslavia, the rehabilitation of mental patients in Turkey, psychopharmacology in India, child-rearing practices in Japan, and cognitive thought patterns on an isolated Pacific island. In short, wherever there are people there is human behavior, and in that place there may be something valuable to be learned. The history of progress in the mental health field is a history of the cross-fertilizations of such ideas.

What of the future of international collaboration in mental health programs? Presumably it will continue to take place, although given restrictions on the general budget and our unfavorable balance of international payments, the level is likely to be modest. However, even a modest amount of collaboration can have an important effect on mental health efforts in this country, and it is very important that it continue to take place.

The exact scope and direction of the future international collaboration will be determined in part by the issue of legislative authority. As a domestic agency NIMH is restricted by the present allocation of authority to activities which have a direct benefit for mental health programs in the United States. Occasionally staff time is used in ways directly beneficial to other countries, such as participating on World Health Organization expert committees or helping coordinate the mental health relief efforts for earthquake-stricken Nicaragua. But the funds of the agency are virtually never used in this way; this is not supposed to be the job of NIMH.

Assisting other countries is theoretically the job of the Agency for International Development under the Department of State. This agency, unfortunately, has been hampered by being underfunded. Its efforts in the health field have been modest and in the mental health field virtually nonexistent. It has had neither the finances, the manpower, nor the technical expertise to get into such fields. On the other hand, agencies like NIMH often possess the technical expertise needed by other countries but, like the Agency for International Development, can support only very limited international consultation.

Some of the same statements can be made about the World Health Organization. Underfunded and understaffed, it has been able to make only small dents in what is a very large problem of upgrading the level of health care in other countries. In health as well as in economics, the countries which have, appear to be getting richer; and the countries which do not have, appear to be getting poorer. This state of affairs is ultimately in nobody's best interest.

Perhaps it is time, for this reason, to begin identifying an international development function of domestic agencies and making it available on loan where it is needed. International health consultation is a viable model which should be expanded. It is usually devoid of politics and represents an area in which international cooperation can be most readily achieved. The expert from the United States simply offers his evaluation and recommendations while it remains the responsibility of the host country to implement, modify, or disregard his suggestions. Much owrk in this direction could be done at little or no expense to the domestic agencies. For example, many senior professors of psychiatry in the United States take a sabbatical year after several years of teaching. Some of them periodically inquire if there are medical schools in developing countries of the world which could use their services for the year. At present there is no easy way to make such connections as there is no clearinghouse set up. The coordination of the Nicaraguan relief effort in mental health, described in the Introduction of the book, is another example of such an effort which brought together volunteer professionals, private fundraisers, industry, and the needs of another country.

A variation of the above model is the linking of specific institutions, cities, or States in the United States with "sister" institutions, cities, or provinces or states in other countries. This is people-to-people cooperation and can be effective in the mental health field just as it can in any other field. It has had modest beginnings in the Partners of the Americas program (in which various States in this country are linked with provinces or countries in Latin America) and also in a program set up by the American Medical Association linking American medical schools with counterpart medical schools in other countries. It is also inherent in the ICMRT's described in the Introduction. Why shouldn't the same linking occur between university departments, between state or city mental health authorities, or between individual mental hospitals? Such a proposal would not be an attempt to encroach upon the functions of a Government organization like the Agency for International Development or an international organization like the World Health Organization. Rather it would be a complementary effort. It would be a point of linkage between the mental health resources of the United States and the technical needs of other countries. The exact structure for such a linkage could be of several types and should be set up in such a way as to distinguish the domestic goals of an agency like NIMH from its international expediting role. To clearly distinguish the two, goals and functions would have to be explicitly stated and constantly reevaluated.

Even in continuing its current international program, however, NIMH can give more consideration to the needs of the rest of the world even as it pursues its domestic mission. For example, in the training area there are currently over 1,200 foreign psychiatric residents in training in hospitals in the United States. Many of these are in State hospital training programs where the needs of service overwhelm the needs of training. Since many of these residents remain in this country. improving their training programs would be of direct benefit to the United States inasmuch as more skilled psychiatrists would be produced. In addition, those who return to their home countries would also be better trained, thereby benefiting the countries of origin.

An interesting attempt in this direction has been set up at the University of Hawaii under Dr. John McDermott. Indonesian psychiatrists are given a special training program in child psychiatry which takes into account their particular background and needs as Indonesians. The hospitals in which these residents work while in Hawaii are certainly better off because of this training program, and so is Indonesia when they return. Since the program is explicitly set up for Indonesians who will return to their own country, NIMH cannot offer assistance to the program. With a broadened mandate as suggested above, however, NIMH could at least encourage the development of such programs by offering technical assistance to AID, WHO, or other organizations whose role is to promote this international development.

Another example of bilateral benefits to be derived from a slight broadening of already existing NIMH functions is in information exchange and dispersal. Through the National Clearinghouse for Mental Health Information, the National Clearinghouse for Drug Abuse Information, and the International Reference

Center for Psychotropic Drugs, NIMH already processes and disseminates vast amounts of information on training, services, and research in the mental health field. Such information could be linked to computer information banks in such places as the World Health Organization and, in turn, made available to computer hook-ups in other countries in the world. Such information networks could then be used for all areas of mental health. A paucity of technical information is one of the major impediments to development in many countries, and NIMH, like many other domestic Government agencies, often has access to this needed information.

Increased support for research-oriented mental health service programs in other countries is also indicated. In spite of a high ratio of psychiatrists to population in the United States, we still have not arrived at generally acceptable service standards in treating and rehabilitating seriously impaired mental patients. A small research grant to Dr. Thomas Lambo's village hospital system in Nigeria revealed that more effective services could be delivered less expensively. Greater resources should be made available for the support of such innovators of services. In a country like India with one psychiatrist for 2 million people, or Ethiopia with one psychiatrist for 10 million people, mental health services can be delivered in innovative and exciting ways. If properly researched and evaluated, such innovations could set important precedents for other countries as well as our own. The only deterring factors to such service innovations are the belief that Western psychiatric services must be accepted as a model, and the lack of funds to support such innovations.

Future research dollars should continue to be spent, as they are now, to support important research in other countries. It is necessary to utilize experiments of this nature wherever they are found and to support cross-national and multinational research projects in order to see our own findings in accurate perspective. Probably more such projects should be funded through the World Health Organization, as is the nine-nation schizophrenia study. The bilateral agreement to cooperate on schizophrenia research with the Soviet Union is also a step in the right direction.

As international cooperation becomes more a reality in the coming years, it may well be appropriate to partially support the creation of a series of problem-centered international research institutes. For instance, there could be institutes on such problems as schizophrenia research, depression and other affective illnesses, childhood psychoses, mental retardation, alcoholism, drug abuse, and basic brain chemistry and physiology. Such institutes, situated in neutral or Third World nations, would attract the best researchers in these areas for 2 or 3 years at a time. Working in adjacent laboratories would promote cross-fertilization of ideas and thus give an impetus to research which is now impossible to achieve from occasional exchanges at international meetings.

Less in the realm of brain disease and more in the realm of the study of human behavior, it may also be advisable to support the creation of regional behavioral science centers in the coming years. NIMH has helped support the creation of such centers in Hawaii (the East-West Center, focusing on Asia and the Pacific) and in Puerto Rico (the North-South Center, focusing on Latin America). Such research centers minimize overlap and maximize the dissemination of research information among scholars of the area.

In all such international efforts, both present and future, it is important to directly face the inherent and inevitable problem of scientific information which may be useful for political purposes. A chief impediment to multinational scientific research projects in the past has been fear that one nation would use information gained against another nation. To minimize this problem it is important that the scientific goals of all international projects be clearly stated and openly debated. Domestic health agencies like NIMH should pursue their scientific objectives independent, insofar as possible, of political considerations. For this reason the Agency for International Development, attached to the Department of State, should probably not have direct responsibility for planning scientific projects for health agencies. Rather, utilizing international organizations like WHO is probably more appropriate.

In all these endeavors evaluation must constantly be utilized. This has not always been true in the past. International research, service, and training efforts must be initially assessed and periodically reevaluated with at least as much conviction as domestic efforts. And such evaluation should be done by people outside the agency since few human beings have the ability to admit that their efforts have failed. The future of international input into mental health programs will be, in large measure, determined by the strength of these evaluative efforts. International programs are well worth supporting and they are also worth evaluating well.

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